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JUPITER: DEVELOPMENT ASPECTS - DEPLOYMENT
(Unclassified)

VOLUME I: TEXT

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CONTENTS

VOLUME I

LIST OF PHOTOGRAPHS

PREFACE

Historians of other commands have presented the impact of the Jupiter weapon system on their missions. This study, however, is an attempt to consolidate some of Jupiter's many facets--development and production, operational planning, and deployment efforts--and follow the Jupiter through the installation and checkout program.

To assist the reader in finding references to the many decisions leading to installation and checkout, the writer has deviated from the normal course of presentation by developing a rather detailed chronology and putting it in the text. The combined efforts of several writers have made this chronology possible. For the early developments leading to the initial production of the Jupiter, the writer has leaned heavily on Akens' Historical Origins of the George C. Marshall Space Flight Center. For the second period, beginning with the Jupiter's transfer from the U. S. Army to its ultimate assignment to this headquarters, the author used two excellent chronologies prepared by Miss Ethel DeHaven, Historian, Office of the Deputy Commander, Air Force Systems Command for Aerospace Systems. To these individuals--Mr. David S. Akens and Miss Ethel DeHaven--the writer is deeply indebted. Other entries were extracted from the supporting documents. The files located in the SM-78 Weapon Support System Management

Division were excellent sources for entries. It is hoped that this chronology will serve a meaningful purpose to those who are seeking a terse summary of decisions in the Jupiter program.

A second purpose of this study is to describe the weapon system management organization used by the Air Force in deploying the Jupiter. To the weapon system manager this might appear redundant. Yet on the other hand, as one writer expressed it, "at any given point in history, current policy is forged in the twin fires of conflicting ideology and technological change."* Concerning technological changes and our ability to establish management organizations to cope with those changes, it becomes increasingly important for us to record for ourselves and for posterity the way we did what we did and why we did it. Therefore, the purpose of the supporting document collection is evident. The reader is encouraged to use the supporting documents for solutions to problems not presented in the text.

After the signing of the Country-to-Country and Air Force-to-Air Force agreements, the intricate plans of deployment, construction, and installation and checkout started to take shape. Naturally, problems arose that affected these plans. But officials were able to put solutions into effect. It is hoped that the

* Wilbur E. Clemmer, Supervising Historian, Historical Division, in History of the Air Materiel Command/Air Force Logistics Command (1 July - 30 June 1961) p. 1. MOAMA Hist. Archives.

lessons learned in this deployment program can help in similar projects.

The writer is grateful for the patience and willingness expressed by Marlin Adair and Neil Matheson of the SM-78 Division for their efforts to explain the many technical problems to the writer's satisfaction.

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CHAPTER I: A JUPITER CHRONOLOGY

8 November 1955	Department of Defense made the decision to establish an IRBM Program to achieve early shipboard and land-based capability.[1]
20 September 1956	A Jupiter C missile attained an altitude of 680 miles and a range in excess of 3,300 miles.[2]
26 November 1956	Decision was made by Secretary of Defense Wilson to give the Air Force sole operational responsibility for employment of land-based IRBM's of over 200-mile range.[3]
14 December 1956	The ABMA Liaison Office at Western Development Division (later known as the Air Force Ballistic Missiles Division) requested the Air Force to furnish operational concepts and military characteristics for USAF IRBM's. Information was furnished on 16 April 1957, after W. D. D. received permission from Department of the Air Force to release it.[4]
1 March 1957	Jupiter Missile 1A, the first R & D missile, was fired at the Atlantic Missile Range. It broke up after 74 seconds of flight.[5] Cause--overheating in the tail section.
26 April 1957	Jupiter Missile 1B fired at AMR. Breakup occurred after 93 seconds of flight. Cause -- propellant sloshing.[6]
31 May 1957	Jupiter Missile 1 was successfully fired at AMR to a range of over 1400 nautical miles. This successful firing revealed that use of the anti-sloshing baffles had solved the propellant sloshing problem.[7]
8 August 1957	A Jupiter C, launched at Cape Canaveral, reached an altitude of 600 miles and a range of over 1,200 miles.[8]

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13 August 1957	Secretary of Defense directed that fund commitments in excess of the production rate of one Jupiter per month through CY 1959 be suspended or cancelled. Also, overtime at ABMA and its contractors involved be held to three per cent.[9]
28 August 1957	Jupiter Missile 2 was fired from AMR. Separation of the body and thrust unit, programmed for the first time, and all other missions were accomplished.[10]
15 October 1957	The Director of Guided Missiles authorized the ABMA to develop and complete the Jupiter Missile Program. Restrictions on personnel and overtime were lifted and production limited to two missiles per month.[11]
23 October 1957	Air Force Ballistic Missiles Division (AFBMD) Project Office established.[12]
27 November 1957	The Office of the Secretary of Defense advised the Secretary of the Army and the Secretary of the Air Force of its decision to proceed with the production and deployment, under Air Force control, of the Thor and Jupiter systems.[13]
4 December 1957	Jupiter Task Group established at BMC.[14]
1 January 1958	The 864th Strategic Missile Squadron activated.[15]
6 January 1958	A Department of the Air Force Memorandum to the Secretary of the Army, dated 6 January 1958, established a requirement for a Joint Air Force-Army Agreement for the Jupiter program.[16]
20 January 1958	Headquarters USAF conference convened to develop an Interservice Agreement.[17]
3 February 1958	Headquarters USAF assigned the executive management responsibility of the Jupiter program to the Air Materiel Command. A Jupiter weapon system project office was established at AMC/BMO on 12 February 1958.[18]

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11 February 1958	A Logistics Planning Conference convened at ABMA.[19]
12 February 1958	Joint Tenancy Agreement at ABMA.[20]
12 February 1958	A Jupiter WSPO established at BMC.[21]
27 February 1958	Headquarters, AMC assigned the Logistics Support Manager responsibilities to Commander, MOAMA.[22]
21 March 1958	Commander, AMC, by AMC General Order No. 26, dated 21 March 1958, established the Air Force Jupiter Liaison Office (AFJUPLO or AF JUPLO) at ABMA, Redstone Arsenal, Huntsville, Alabama, effective 1 March 1958.[23]
27 March 1958	Department of the Air Force recommended to the Secretary of Defense the feasibility of considering Alaska as an alternate location for the Jupiter if NATO agreements failed to materialize. The Air Force also recommended a slippage in deployment date for the first squadron from December 1958 to February 1959.[24]
1 April 1958	AFBMD established an European Field Office.[25]
7 May 1958	Headquarters, USAF, rescinded the DOD directive, dated 27 November 1957, that reduced the Jupiter program from four to three squadrons. Further, the units would be NATO units and manned with NATO personnel. Deployment of the first squadron was rescheduled; initial increment of five missiles in place by December 1958. The squadron would be completely deployed by February 1959. The other squadrons--second and third--to be deployed by February 1960. France was identified as the host country.[26]
9 May 1958	The Office of the Secretary of Defense authorized the Air Force to proceed with base preparations in Alaska for one Jupiter/Thor squadron. Action in this area continued until 18 September 1958, when the Air Force received instructions to hold the Alaskan actions in abeyance, pending the status of new negotiations underway with Italy.[27]

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18 May 1958	Jupiter Missile No. 5 launched at 1205 hrs., E.S.T. from Patrick Air Force Base. This missile was equipped with the first tactical type re-entry nose cone.[28]
1 July 1958	Transfer of logistics and industrial operations functions from AFJUPLO to MOAMA.[29]
17 July 1958	First completely guided Jupiter launched from Cape Canaveral at 0405 hrs., E.S.T.[30]
22 August 1958	Headquarters, USAF, furnished guidance for planning purposes for deploying two Jupiter squadrons to Italy.[31]
30 August 1958	The Air Force, in a message to all concerned, stated the authorization and guide lines to be used for Air Force negotiations with Italy for that country's receipt of two Jupiter squadrons.[32]
12 September 1958	Hq USAFE message AFOOP 57123 dated 12 September 58 directs Hq SAC to amend the SM-78 Jupiter Operational Plan to reflect the AF concept for the first Jupiter squadron; that is, two launch positions of three missiles each rather than six separate launch sites with a second standby missile. Hq SAC message DPLBC 3533 dtd 26 September 58 spells out recommendations for time phasing of the first Jupiter squadron to achieve their full operational capability. Hq USAF message AFOOP-ST 50554 dtd 5 Nov 58 concurs with SAC recommendations. Revised SAC OP 1-58 dtd 29 Oct 58 reflects this position.[33]
24 September 1958	USAFE Support Squadron (Jupiter): Hq USAFE letter dtd 19 Sep 58, Subj: Support for Jupiter IRBM Squadron (U), and Hq USAF Message AFPMP 58821 dtd 27 Sep 58, Subj: Requirements of 7230th Support Squadron (U), furnish USAF guidance to USAFE for activation and manning of that organization.[34]
3 October 1958	AFJUPLO message ORDAB-W-MCV-2-10-23-E dtd 3 Oct 58 established the requirement for a major command conference at AFJUPLO on

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13-14 Oct for purposes of defining relationships and responsibilities of all Air Force commands and agencies concerned with Jupiter NATO deployments. This conference was conducted at AFJUPLO on 13-14 Oct 58. A Jupiter Program command responsibility paper was developed and forwarded to Hq USAF on 31 Oct 58 for approval. Air Staff approval is still pending.[35]

4 October 1958

Jupiter Planning Guidance, Hq USAF: Hq USAF message AFCOM 59083 dated 3 October 58, subj: Jupiter Operational Training provides USAF guidance in several areas to all major commands concerned with the Jupiter Program. This guidance is presented as answers to questions posed to Hq USAF by these AF activities.[36]
Jupiter FY-59 2nd qtr Fund Requirements: FY-59 2nd qtr fund requirements for the Jupiter Program. AFJUPLO Message ORDAB-WP-NCV-2-10-34-E dtd 6 Oct 58 to Hq USAF lists the fund requirements for 2nd qtr FY-59.

6 October 1958

USAFE Intra-Command Jupiter responsibilities: Hq USAFE message, DCBM 8RM 2336 dtd 2 Oct 58 quoted to BMC by AFJUPLO message ORDAB-W-TS-5805-E dtd 6 Oct 58, contains recommendations of delineation of overseas command responsibilities for support of the Jupiter program. AFJUPLO message ORDAB-W-TS-5805-E dtd 6 Oct 58 downgraded to SECRET by ORDAB-W-LBG-4-10-155-E dtd 29 Oct 58.[37]

7 October 1958

Jupiter Mobility: Hq USAF message AFOOP-ST-59146 dated 7 Oct 58 to all concerned deletes the tactical mobility requirements from the Jupiter Weapons System.[38]

7-10 October 1958

Jupiter Development Engineering Inspection and Contractor Compliance Technical Inspection: AFJUPLO message ORDAB-W-MONP-7-53-E dtd 11 Jul 58 notified interested commands of the Jupiter DEI/CTCI inspection on Jupiter Prototype tactical ground support equipment that would be conducted at Redstone Arsenal, Alabama on 7-10 Oct 58. This event was held as scheduled, and a total of 79 Request for Alterations (RFA's) were submitted by AF representatives attending, of which 27 were approved, 20 placed in a

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	study category and 32 disapproved by RFA Board.[39]
8 October 1958	Jupiter Combat Training Launch Program; Hq USAFE message DCBM 852A dtd 7 Oct 58 to Hq USAF presents that commands comments on Jupiter CTL Program for NATO Jupiter equipped units.[40]
8 October 1958	Jupiter Training Reprogramming Conference: Hq ATC message ATTOT-MB 0422 dtd 7 Oct 58 to all concerned established conference date and ground rules for Jupiter Training Reprogramming Conference necessary to realign that program for NATO personnel inputs. Results of this conference appear in ATC document, Subj: Jupiter Individual Training Reprogramming Conference Report 28 Oct - 7 Nov 58, Control No. ATOBM 58-35.[41]
8 October 1958	USAFE IRBM Responsibilities: USAFE Jupiter Command responsibilities Hq USAFE message DCBM 886 dtd 8 Oct 58 to Hq USAF restates that commands responsibility as USAF single point of contact in Europe and its relationship with other commands concerned.[42]
9 October 1958	Jupiter Surface Transportation: USAFE message MTPP 40749 dtd 9 Oct 58 to all concerned established basic surface transportation responsibilities in support of Jupiter deployments. AF and Army agencies overseas are identified.[43]
14 October 1958	ABMA/MOAMA Agreement on transfer of Logistics Functions.[44]
16 October 1958	Jupiter Funding Policy: AFJUPLO message ORDAB-WP-LBG-4-10-7100E dtd 16 Oct 58 to MBC states and questions Jupiter funding policies established by AFABF Hq USAF.[45]
16 October 1958	SM-78 Program Plan (Jupiter) SACPP 29-58; Hq SAC published a Jupiter Program Plan for the deployment of the 864th SMS. This plan outlines the responsibilities of each of the SAC Staff Directorates in implementation of the reference deployment program.[46]

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20 October 1958 — Jupiter Deployment Site: Hq USAFE message DCBM 986 dtd 20 October 58 to all concerned identifies the deployment site for the second Jupiter Squadron. Additional information is contained in USAFE message DCBM 1150 dtd 3 Nov 58. Sites are Gioia Del Colle/Bari for the first Jupiter squadron and Foggia/Gina Lisa for the second squadron.[47]

23 October 1958 — Jupiter Funding Channels: Hq AMD message MCCBB 10-29-CM dtd 22 Oct 58 to BMC & MOAMA establishes funding channels for support of the Jupiter Program.[48]

23 October 1958 — Jupiter Materiel Accountability: Hq AMC message MCFML 3291 dtd 23 Oct 58 which quotes Hq USAF message AFMMS-OP-PC 59736 dtd 16 Oct 58 identifies ground rules for transfer of Jupiter Materiel accountability from USAF ownership to MAPPOM.[49]

24 October 1958 — Jupiter Design and Construction Program for First Jupiter Squadron: Hq SHAPE message ALO 1004 dtd 24 Oct 58 to all concerned summarizes the austere facilities design and construction program costs and construction schedule for the deployment site of first Jupiter Squadron.[50]

24 October 1958 — Deployment Guidance for 864th SMS: Hq USAF message AFOCD 50053 dtd 24 Oct 58 to all concerned confirms deployment of the 864th SMS to commence in Dec 58. This guidance was amended by Hq USAF message AFCGM 50627 dtd 6 Nov 58, referenced below.[51]

28 October 1958 — Jupiter Deployment Plan: Hq USAFE message DCB 1080 dtd 28 Oct 58 to all concerned rebuts Hq USAF guidance on deployment of 864th SMS until government-to-government agreements and MAAG/MOD agreements have been consummated.[52]

29 October 1958 — SAC Operational Plan - Jupiter SM-78 (Revised): Hq SAC published and revised Jupiter Operational Plan on 29 Oct 58. This Plan supersedes the SAC SM-78 (Jupiter) Operational Plan SACOP 1-58 dtd 4 Mar 58.[53]

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1 November 1958	Long Range Objectives Plan Jupiter 1-58: First Missile Division Plans Directorate has published a Long Range Objective Plan for Jupiters specifying that units role in the Jupiter Program, publication date was 1 Nov 58, Control No. A58-828.[54]
5 November 1958	Interservice agreement signed.[55]
6 November 1958	Jupiter Deployment: Hq USAF message AFCGM 50627 dtd 6 Nov 58 to all concerned supersedes previous USAF guidance of deployment of the first Jupiter squadron and deleted the Dec 58 - Feb 59 deployment schedule with X-day being the date government-to-government agreement with recipient host country consummated.[56]
7 November 1958	Funding Jupiter P-400 Requirements: AFJUPLO message ORDAB-WP-LBG-4-11-24 E dtd 7 Nov 58 to commands concerned implements AMC P-400 funding policy.[57]
12 November 1958	Deletion of Tactical Mobility: Hq USAF message AFCVC 50791 dtd 12 Nov 58 to all concerned provides additional guidance on deletion of tactical mobility from Jupiter squadrons. Original deletion was contained in Hq USAF message AFOOP-ST-59146 dtd 7 Oct 58.[58]
13 November 1958	Delayed Deployment of the First Jupiter Squadron: Hq USAF message AFXPD 50811 dtd 13 Nov 58 provides additional guidelines for delayed deployment of the first Jupiter squadron. Original information was reflected in Hq USAF message AFCGM 50627 dtd 6 Nov 58.[59]
18 November 1958	Jupiter (SM-78) Interservice Agreement (AFOOP 71970): Hq USAF published the approved Joint USA-USAF Interservice Agreement on 18 Nov 58. This Agreement has been in Air Staff and Army coordination since Jan 58.[60]
24 November 1958	Transfer of Certain Logistics Functions: Comdr ABMA message ORDAB-SJ-82-11-58 dtd 24 Nov 58 to AMC and others spells out the transfer of certain logistics functions and

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	responsibilities in support of the Jupiter weapon system from ABMA to MOAMA. MOAMA message MOBE-12-22-E dtd 19 Dec 58 outlines MOAMA concept of operation for implementing their logistic responsibilities.[61]
29 November 1958	FY-59, -60 Funding for Jupiter: Hq USAF message AFCVC 51482 dtd 29 Nov 58 to all concerned identifies the amounts of monies in the AF budget for a three squadron Jupiter program.[62]
28 November 1958	Jupiter Missiles Weapon System Management: MOAMA message MOF-11-73-E dtd 28 Nov 58 to all concerned advises of the establishment of a Jupiter Weapon System Division within MOAMA to handle Jupiter logistical responsibilities.[63]
1 December 1958	SAC Deployment Plan (Personnel) for 864th SMS: Hq SAC has published and made distribution on the personnel deployment plan for the 864th Strategic Missile Squadron into the overseas area.[64]
3 December 1958	Cancellation of Command Control Console: AFJUPLO message ORDAB-W-MONP-12-12-E dtd 3 Dec 58 advises of decision to delete the requirement for the command control console and data transmission system for the Jupiter system.[65]
4 December 1958	Jupiter Combat Launch Training Program: Hq USAF message AFCCS 51664 dtd 4 Dec 58 to all concerned reaffirms Hq USAF decision to conduct Jupiter CTL at the Atlantic Missile Range and desire Hq ARDC as the responsible command to program and fund for facilities and support for the CTL program based upon USAFE requirements.[66]
4 December 1958	Redesignation of 864th SMS: Hq USAF message AFOOP-ST-51643 dtd 4 Dec 58 states that the 864th SMS will be redesignated the 864th Technical Training Squadron effective 18 Jan 59.[67]

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4 December 1958	BMC/AFBMD Operational Plan 1-58 (Revised): Proposed revision of AFBMD Ops Plan 1-59 dtd 1 Mar 58 has been accomplished jointly by BMC/AFBMD. Major revisions are the removal of all Jupiter technical responsibilities from the BMETO and establishment of a Jupiter Field Office MOAMA/USAFE on the Continent.[68]
4 December 1958	Planning Data for Jupiter Program Deployment Schedule: Hq USAF message AFCGM 51685 dtd 4 Dec 58 recommends a revised Jupiter deployment schedule and requests comments from commands concerned. This schedule ties in deployment of 864th with the expected construction program in Italy based on a consummated government-to-government agreement by 1 Jan 59, and deployment of 864th can slip on month-to-month basis until 1 Mar 59 without causing any slip in the other two squadrons. Schedule reflects launch emplacement completion as follows: 864th - Apr 59/1, May 59/2, Jun 59/3, July 59/3, Aug 59/3, Sep 59/3 865th - Oct 59/1, Nov 59/2, Dec 59/3, Jan 60/3, Feb 60/3, Mar 60/3 866th - Apr 60/1, May 60/2, Jun 60/3, Jul 60/3, Aug 60/3, Sep 60/3[69]
10 December 1958	Jupiter Facility Construction Program: Hq SHAPE message ALO 11-1 dtd 10 Dec 58 to Hq USAF and others states SHAPE comments and proposal for construction of operation facilities for Jupiter equipped squadrons deployed to the Continent.[70]
12 December 1958	Jupiter Combat Training Launch Program: AFJUPLO message ORDAB-W-LBG-4-12-43-E dtd 12 Dec 58 to Hq USAF and others outlines some problems relative to missile allocations for support of the CTL and summarizes the CTL program as developed during recent conferences with commands concerned, and request Hq USAF guidance on number of missiles to be provided for subject program.[71]

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12 December 1958	Jupiter FY-59 O&M Fund Requirements: AFJUPLO message ORDAB-W-MON-12-46-E dtd 12 Dec 58 to Comdr AMC states revised estimated O&M requirements for period 1 Jul 58 through 30 Jun 59. This information supersedes O&M fund requirements previously stated in AFJUPLO message ORDAB-WP-LBG-4-11-24-E dtd 7 Nov 58.[72]
12 December 1958	Missile Indoctrination/Language Training of Support of Jupiter: Hq ATC message ATOTT-MBO-516 dtd 12 Dec 58 to Hq USAF and others summarizes the proposed language training program for foreign nationals and effect of lack of government-to-government agreement on this program. Also advises bid for contract Instructors in support of this program is held in abeyance until 24 Dec 58 pending USAF guidance. Hq USAF message AFPTR-T-2 52003 dtd 13 Dec 58 advised ATC that 5 Jan 59 is deadline date for contract negotiations and if this date passes then contract negotiations will not begin until June 59 for training to commence on 19 Jul 59. This will require SAC to man the 865th and partially man the 866th. Hq USAF message APTR-T-2 52002 dtd 13 Dec 58 pertains to this matter in general.[73]
17 December 1958	Agreement between BMC & MOAMA re transfer of Executive Management Responsibility from BMC to MOAMA on 1 Jan 59.[74]
19 December 1958	Establishment of MOAMA Jupiter European Field Office (MOJEFO): AMC/BMC Field Office Message to General Callahan and General Funk from Colonel Foote, cite No. BMETO-LBG-5-12-43-E dtd 19 Dec 58 outlines action taken to establish and man the MOAMA Jupiter European Field Office.[75]
19 December 1958	Approval of EMR transfer by Hq AMC.[76]
23 December 1958	SAC Position on Jupiter Operational Configuration: Hq SAC message DPLBC 6966 dtd 23 Dec 58 to Hq USAF and others states SAC concern over degree of changes to Jupiter

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operational requirements being recommended by USAFE and restating that should NATO deployment fail to materialize, SAC still expects to follow the operational planning reflected in SACOP 1-58 dtd 21 Oct 58 (Revised).[77]

24 December 1958 — AFJUPLO Comments on Hq USAF message AFCGM 51685 dtd 4 Nov 58; AFJUPLO Message ORDAB-WP-LPG-4-12-97-E to Hq USAF and others contains AFJUPLO comments primarily on the NATO manning and language training programs effected by revised deployment schedule prepared in Hq USAF message AFCGM 51685 dtd 4 Dec 58.[78]

1 January 1959 — Transfer of EMR from BMC to MOAMA.[79]

1 January 1959 — Phase-down of AFJUPLO, Inglewood to be completed by 30 Jan 59.[80]

26 March 1959 — AFJUPLO Quarterly Progress Report for Second Quarter CY-1961 disclosed that Italian-U.S. Agreement signed.

3 April 1959 — Jupiter R & D missile 22A was fired from the Atlantic Missile Range at 1934 hours EST. All primary missions were successful. The nose cone impacted in the prescribed target area at a range of 1302 nautical miles.[81]

6 May 1959 — Jupiter R & D missile 12 was fired from the Atlantic Missile Range at 2047 hours EST. The major primary missions were accomplished, although preliminary data indicated that the nose cone impacted 68.9 nautical miles short and 4.9 nautical miles right of the target. The range for this flight was 1302 nautical miles.[82]

8 May 1959 — As of this date, a total of 16 Jupiter R & D firings had been accomplished. Of these, eleven were considered successful, four partially successful, and only one was considered a failure.[83]

14 May 1959 — Jupiter R & D Missile 17 was fired from the Atlantic Missile Range at 0052 hours. At a prescribed range of 1302 nautical miles, the nose cone landed 0.40 nautical miles left and 0.26 nautical miles beyond the target.[84]

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28 May 1959

Jupiter R & D missile 18 was fired from the Atlantic Missile Range at 0235 hours EST to a range of 1302 nautical miles. This flight was of particular significance because it was the first American launch on which primates were passengers. Able, an American-born Rhesus Monkey and Baker, a Squirrel Monkey, were successfully recovered from the nose cone by crew members of the recovery ship U. S. S. Kiowa, approximately 90 minutes after lift off. Officials conducting the experiment for NASA also placed small quantities of yeast, corn, mustard seed, fruit fly larvae, human blood, mold spore, and fish eggs in the nose cone in order to conduct further studies of the effects of space flight, cosmic radiation, and so forth, upon lower forms of animal life and other living systems.[85]

8 June 1959

As of this date, there have been 18 Jupiter R & D firings. Of this number, 12 have been considered successful, five partially successful, and one considered a failure.[86]

18 June 1959

A representative of Hq USAFE briefed the Commanders of ABMA and MOAMA on the status of negotiations with Italy. It was apparent that the earliest possible M-date would be 1 June 1959 rather than the then official M-Day of 1 April. In addition, construction and facility requirements indicated an extension of the deployment schedule for the first emplacement beyond M/190.[87]

22 June 1959

The Commander, AOMC, informed the Army Chief of Staff of the high level of readiness and training of both the 864TTS and the Installation and Checkout Team--a state of preparedness which makes possible deployment of a USAF-manned launch emplacement anywhere in the world on U. S. controlled land within 30 days of "go-ahead". This early deployment of the U. S. manned 864th TTS would not jeopardize the later deployment of IAF manned units on the current schedule and would insure that the Jupiter

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System would not remain inactive in storage. According to the same source, the Commander, MOAMA has taken similar action through USAF channels.[88]

9 July 1959

Jupiter R & D missile 15, the 19th Jupiter IRBM to be flight tested and the seventh IOC prototype to be flight tested, was fired from AMR at 2001 hours EST. All primary and secondary missions were successfully accomplished. Early estimates indicated that the nose cone impacted well within one nautical mile of the pre-selected target 1302 nautical miles down range. The most reliable indicator revealed a miss distance of only 0.48 nm short and 0.09 nm to the right.[89]

10 August 1959

The USAFE and the IAF signed the Technical Agreement pertaining to the deployment of the Jupiter Weapon System to Italy. Concurrent with the signing, 10 August became the officially designated M-Day. USAFE advised ABMA that the Beneficial Occupancy date for the first launch position is 1 April 1960 rather than 15 March 1960, as previously designated. Consequently, deployment planning "is not on a 190-day schedule, as previously envisioned, but is based on specific BOD's furnished by the IAF."[90]

26 August 1959

Jupiter R & D missile 19 was fired from the AMR at 2030 hours EST to the prescribed short range of 300 nautical miles. Preliminary reduction of data disclosed that the nose cone landed 0.03 nm short and 0.22 nm to the right of the intended target.[91]

16 September 1959

Jupiter R & D missile 23 fired from AMR at 0645 hrs EST. After approximately 13 seconds of flight the missile broke up. After a study of the data accumulated, officials believed that the cause of the failure was a defective silver-soldered joint of the flexible hose assembly, which interconnects the high-pressure gaseous nitrogen triple sphere to a smaller volume gaseous nitrogen sphere.[92]

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30 September 1959	R & D missile 24 was fired successfully from AMR at 2028 hours EST to a precalculated range of 1299.4 nautical miles. This flight was postponed from 23 September because of the discovery of a leak in a one and one-fourth inch flexible fuel-start line leading to the gas generator in the tail section during fuel operations in the count-down sequence on the 23rd.[93]
October 1959	ABMA completed work on Jupiter IOC missiles 120 and 121 during this month. According to this source, "these missiles will be held in storage until required for use with the Third Squadron." The delivery of these missiles completed the Air Force requirement on ABMA for production of IOC missiles.[94]
2 October 1959	The first airlift of Jupiter material departed Brookley Air Force Base.[95]
11 October 1959	The first surface shipment departed Brookley aboard the S. S.May-Lykes and arrived at Taranto, Italy, on 28 October 1959.[96]
21 October 1959	R & D missile 31 was successfully fired from AMR at 2220 hours, EST to a prescribed range of 1600.448 nautical miles. Nose cone impacted 0.9 nm short and 0.6 nm to the right.[97]
28 October 1959	The U. S./Turkey Country-to-Country Agreement signed. For planning purposes, 1 June 1961 was established as the BOD for the first launch position.[98]
2 November 1959	The LOGBALNET Communications Circuit became operational between MOAMA and the overseas site.[99]
4 November 1959	R & D missile 33 was successfully fired from AMR at 1938 hours EST, to a range of 1299.4 nm. Impact measurement: 0.56 short and 0.09 nm right.[100]
5 November 1959	The second surface shipment of Jupiter equipment departed from Brookley AFB. Arrived in Taranto on 20 November.[101]

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9 November 1959	An Italian contractor, Emilio Medioli and Figli Spa Mariotti, commenced work to rehabilitate the Interim RIM area.[102]
10 November 1959	Missile 205, which was used at ABMA for procedures proofing in the Match-Mate Program, was dismantled.[103]
13 November 1959	Mating of the last missile scheduled for matching and mating at ABMA--Missile System 209--was completed.[104]
18 November 1959	R & D missile 25 was fired successfully from AMR at 2031 hours EST, to a precalculated range of 664.8 nm. Impact: 0.9 nm over and 1.0 nm left.[105]
22 November 1959	Two C-124 aircraft carrying the second air shipment consisting of RIM test equipment, system documentation, and one trainer missile on transporter, departed U. S. Army Airfield, Redstone Arsenal.[106]
9 December 1959	R & D missile 32 fired from AMR at 1908 hours EST to a range of 1299.4 nm. Impact: 0.3 nm short and 2.0 nm right.[107]
16 December 1959	R & D missile 26 fired from AMR at 1903 hours EST. Range: 300 nm. Impact: miss distance of 0.0 in range and 0.1 nm right.[108]
29 December 1959	Pentadome erected at site.[109]
7 January 1960	Pentadome deflated because of high winds. Minor damage sustained to the Pentadome, but it was re-erected after repair.[110]
13 January 1960	Heavy winds damaged the Pentadome for the second time. After deflation of the Pentadome and its removal from the concrete pad, "it was decided to discontinue further use of the structure".[111]
13 January 1960	First training missile erected on site in Italy. It was originally scheduled for erection on 10 December 1959. However, the joint decision of General Pasti, Vice Chief of Staff, Italian Air Force and General Disosway, Deputy Commander, USAFE-ADVON,

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not to erect the missile was based on General Pasti's opinion that the current high rate of unemployment in Gioia del Colle, combined with a possible demonstration pertaining to missile erection might incite strike action.[112]

15 January 1960 — As of this date, there had been a total of 27 R & D firings. Of this amount, 20 were considered successful, five partially successful, and two failures.[113]

25 January 1960 — Jupiter R & D missile 28 fired from AMR at 1947 hours EST to a precalculated range of 1299.4 nm. Impact: 0.04 nm over and 3.27 nm left of target.[114]

1 February 1960 — The first three tactical missiles--numbers 201, 202, and 203--shipped from Redstone Arsenal via C-124, arrived at Gioia del Colle.[115]

4 February 1960 — Jupiter R & D missile 30, the last R & D missile (Underlining added for emphasis), fired from AMR at 1920 hours EST, to a precalculated range of 1299.4 nm. Nose cone impacted 0.67 nm short and 0.52 nm right of target.

The success of the Jupiter R & D program is indicated by the fact that of the 29 Jupiter R & D missiles fired, 93 per cent were considered successful or partially successful, and only seven per cent were considered failures.

This firing schedule was finished approximately four months ahead of the date scheduled for completion of the original Jupiter R & D firing schedule that was established on 23 February 1956.

Also of significance was the fact that of the 29 firings, 19 were tactical prototypes. These 19 were fully guided and of an IOC configuration. Of these 19 missiles, 16 were of sufficient accuracy to land within a circle of five nautical miles radius. Seven of the last 13 launched were within the Jupiter design CPE of 0.81 nautical miles radius.[116]

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21 March 1960	Hq USAFE furnished the MOAMA with the Unit Allowance List for the Turkish Support Squadron. MOAMA has begun processing and assembling the required material.[117]
22 March 1960	The fourth surface shipment of Jupiter Weapon System GSE earmarked for the third and fourth launch positions departed Brookley AFB aboard the SS Almeria-Lykes.[118]
4-5 April 1960	Tactical Jupiter Missiles numbers 204 through 206 departed Redstone Arsenal for Gioia del Colle aboard C-124 aircraft.[119]
13 April 1960	The second and last interim training site became operational at Gioia del Colle.[120]
18 May 1960	The SS Lipscomb Lykes departed Brookley AFB for Taranto, Italy, with GSE and equipment for the fifth and sixth launch positions.[121]
23-24 May 1960	IOC missiles 207 through 209 left Redstone by C-124 aircraft and arrived on site on 27 and 28 May 1960.[122]
1 June 1960	USAFE and Turkish Air Force officials signed the Technical Agreement.[123]
July 1960	The Air Force airlifted missiles 210-212 to Italy during the month.[124]
5 July 1960	The Commander of MOAMA and the Deputy Commander of ABMA, together with a group of Air Force and Army personnel, as well as contractor officials, departed for Gioia del Colle, Italy, to study contamination problems associated with the Jupiter system.[125]
11 July 1960	Launch Position I transferred to the Italian Air Force.[126]
12 July 1960	The sixth surface shipment departed Brookley AFB with GSE for the sixth and seventh launch positions.[127]
15 July 1960	Launch Position I achieved operational capability.[128]

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2 August 1960	MOAMA awarded letter contract AF-61 (602)1668, "for the procurement, installation and checkout of a communications system to provide communications links between launch positions and the main base, and from the main base to Izmir, (Det 20 TUSLOG)" to USAFTA.[129]
1-2 September 1960	Missiles 213-216 airlifted to Italy.[130]
14 September 1960	Permanent Training Site no. 1 turned over to the Italian Air Force.[131]
15 September 1960	MOAMA issued a letter contract, AF-01 (601) 33513, to Chrysler Corporation for the installation and checkout of one Jupiter squadron in Turkey. The squadron was to consist of 15 Jupiter missiles at five launch positions, a Missile Assembly Maintenance Service Building, a training emplacement, and a 20 ton per day LOX Generating facility.[132]
19-20 September 1960	Missiles 301-303 airlifted to Italy.[133]
30 September 1960	As of this date, 87 of the 93 missiles had been delivered.[134]
12 October 1960	The 48-hour acceptance test on the first 25 ton per day LOX plant successfully completed.[135]
15 October 1960	The seventh surface shipment of material departed from Brookley AFB.[136]
17 October 1960	The IAF accepted custody of Launch Position II. However, final acceptance depended upon completion of the investigation of the explosive bolt problem and the subsequent incorporation of an appropriate solution.[137]
20 October 1960	Missile 217 was fired at AMR at 1102 hours, EST. This was a live systems test and all missions proved successful. The nose cone impacted 1.1 nm over and 0.2 nm right of the predetermined target located 962.5 nm downrange.[138]
31 October 1960	As of this date, 89 of the 93 missiles programmed have been delivered. The three remaining Block III missiles are on schedule. Deliveries will be completed in December 1960. Missile number 218 is scheduled for delivery in June 1961. This missile, being assembled at CCMD from available parts, will be delivered to meet the required date.[139]

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23 January 1961	The initial surface shipment of Jupiter material to Turkey, which also included some equipment for Italy, departed Brookley AFB. The material arrived in Italy on 8 February and in Turkey on 11 February.[140]
February 1961	Initial movement of USAFTA personnel from Italy to Turkey.[141]
8 February 1961	High winds toppled and inflicted serious damage to missile 214 at the Italian deployment site. This missile was located at Launch Position IV in Gioia del Colle. The winds were estimated to have reached a velocity in excess of 60 knots. An investigation revealed a requirement for an improved locking device (auxiliary ring to launcher). The damaged missile was returned to CCMD for recovery of serviceable and reparable components. Number 307 has been reallocated to Launch Position IV. Number 323, originally scheduled for deployment to Turkey, will replace number 307 in Italy. A replacement for number 323 is planned.[142]
13 February 1961	Launch Position V turned over to IAF.[143]
3 March 1961	Launch Position VII transferred to IAF.[144]
24 March 1961	Launch Position IV transferred to IAF.[145]
April 1961	The two letter contracts, listed earlier, were incorporated into one contract--AF-01 (601)33513.[146]
14 April 1961	Launch Position III transferred to IAF.[147]
22 April 1961	IAF personnel fired missile 209 in their first Combat Training Launch. The nose cone landed .79 nm over and 2.19 nm right of the target at a range of 1514 nautical miles.[148]
26 April 1961	Launch Position II transferred to IAF.[149]
26 April 1961	The two 20 ton per day LOX Plants, numbers 1415 and 1188, received from CONUS and were placed in staging area and deprocessed. (Turkey).[150]

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29 April 1960	Launch Position IX transferred to IAF.[151]
1 June 1961	LOX Plant 1415 moved into the LOX Generating Area on schedule, in Turkey.[152]
7 June 1961	Launch Position VI turned over to IAF.[153]
13 June 1961	Launch Position VIII transferred to IAF.[154]
15 June 1961	Scheduled date for commencing installation of Plant 1188 in Turkey; however, unscheduled maintenance work on Plant 1415 delayed installation of the second plant--1188--until July. Non-availability of materials and procurement problems postponed installation until October. The plant was turned over to the 7231st TTG on the 27th of that month.[155]
16 June 1961	Plant 1415 put into use in an interim configuration to furnish liquid and gaseous nitrogen for use in checking out equipment in the staging area.[156]
19 June 1961	CCMD fulfilled its responsibilities in the matching and mating program except for the shipment of related items which are required at MOAMA by 1 August 1961, when it completed matching and mating work on number 121 at CCMD, Detroit, Michigan.[157]
20 June 1961	Launch Position X turned over to IAF ten days ahead of schedule.[158]
30 June 1961	As of this date, a total of 31 Jupiters had been fired--twenty-nine in the R & D program, one as a Live Systems Launch, and one as a Combat Training Launch. Of the 31 fired, 24 were successful, five partially successful, and only two were failures. Significantly, 19 of the 29 R & D missiles fired were tactical prototypes with 16 of these landing within a circle of five nautical miles. Seven of the 16 landed within the Jupiter CPE of 0.81 nm, the "most stringent accuracy requirement placed on any long-range ballistic missile". The success achieved in the Jupiter firings has created a high confidence factor among all persons associated with the program.[159]

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1 July 1961

This was the programmed date for BOD of the Maintenance Shop in Turkey, with turnover expected to be accomplished 30 September 1961. Construction problems encountered caused further delays in the installation and checkout of weapon system equipment slated for the facility. The essential equipment was installed by the middle of September. Yet, installation of the other equipment plus cleaning that which had been installed previously had to be performed before the end of the month. At this time, installation activities were beginning at the Launch Positions. This created a demand for additional manpower at the positions. As a consequence, personnel were diverted from the Maintenance Area to the Launch Positions, thus delaying final installation activities in the Maintenance Shop. JEFO officials accepted the shops on 3 January 1962 and final turnover to the 7231st TTG was accomplished on 5 February 1962.[160]

7 July 1961

Definitization of CPFF contract AF 01(601) 33513 between the Air Force and the CCMD provided for the latter to install and check out the Jupiter Weapon System in Turkey and to provide a microwave communications systems between the launch positions and the headquarters. At the time of definitization, the estimated cost and fee amounted to $10,576,765.00. Supplementary Agreement #3, dated 7 December 1961, authorized the contractor to provide janitorial services for a 90-day period at an estimated cost of $700.00. As a result of this agreement, the estimated cost increased from $9,958,810.00 to $9,959,510.00 and the total amount of the contract was increased from $10,584,252.00 to $10,584,952.00.[161]

24 July 1961

Actual BOD for the Training Emplacement, although it had been programmed for 1 July 1961. Construction problems caused this delay. By the first week in August CCMD personnel had moved all the equipment into the area. In addition to the construction problems that retarded completion of the installation was the late delivery of LOX and LN_2 lines to the training site. Late delivery of these items, however, stemmed from the fact that the cleaning shop facility in the maintenance area was not available. Thus, the lines had to be cleaned in interim

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	facilities in the staging area. As a result, personnel could not meet the specifications required. This called for further cleaning at a later date. On 28 August 1961, CCMD personnel turned over the training emplacement area to the 7231st TTG.[162]
1 August 1961	This was the programmed date for the BOD for Launch Position II. Initial access was granted to the USAFTA on 21 August 1961. The late delivery of the LOX and LN_2 lines from the cleaning shop caused some delay in the installation work at the position. In addition, the late receipt of vernier engines, as well as the tardy receipt of the Power Distribution Hut from the U. S. caused delays in the installation and checkout work at the launch position. However, on 31 October 1961, USAFTA personnel transferred Launch Position II to the Air Force. This was the first launch position in Turkey to be completed and the transfer occurred on the programmed date--31 October 1961.[163]
23-25 October 1961	USAFTA officials completed the acceptance demonstration on plant 1188. (See item listed under 15 June 1961).[164]
27 October 1961	Plant 1188 turned over to the 7231st TTG.
9 November 1961	Plant 1415 turned over to the 7231st TTG in a permanent configuaration. Installation problems associated with plant 1188 delayed the transfer of this plant. (See chronology for 15 and 16 June 1961).[165]
1 September 1961	Programmed date for access to Launch Position III. Actual BOD occurred on 26 September 1961. Launch Position III was initially programmed to be the third in order of installation, but reprogrammed to become the second because of construction problems at other positions. USAFTA officials completed the installation and checkout work for Position III and turned it over to the Air Force on 28 November 1961, two days ahead of schedule. Thus, Launch Position III became the second position completed and turned over to the Air Force.[166]

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28 November 1961	The 7231st TTG accepted custody of the LOX storage area.[167]
21 December 1961	Launch Position IV turned over to USAF. This was the third position accepted. Limited access to the position began on 7 November, although it had been originally planned for BOD on 1 November. Complete access to the entire launch position, however, was delayed for four weeks because of construction. Construction problems delayed the completion of the Crew Ready Building. As a result, ten house trailers were moved in to provide living quarters for personnel. Construction crews worked six days a week to complete the project.[168]
3 January 1962	The JEFO accepted the Maintenance Shop. However, at the time of acceptance, there were five waivers and 37 deferred maintenance items scheduled for correction.[169]
23 January 1962	Launch Position I, the fourth position completed, turned over to the 7231st TTG. USAFTA personnel gained accessibility to the first and second emplacements on 1 and 7 December respectively, and accessibility to the third emplacement on 27 December 1961. Prior to the BOD, USAFTA and Air Force personnel had moved all equipment and materiel to the site area, and staged it on perimeter roads. This was "insurance" against bad roads, inclement weather, and so forth.[170]
5 February 1962	USAFTA personnel transferred custody and control of the Maintenance Shop equipment to the 7231st TTG.[171]
28 February 1962	USAFTA personnel turned over Launch Position V, the final one, to the Air Force. USAFTA had gained access to the position during the last week of December 1961.[172]
May 1962	Because of the NATO Maintenance Supply Services Agency's difficulties in attaining the capability to support existing and less complicated systems, Hq USAF disclosed that it would continue supporting the Jupiter.[173]

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CHAPTER II: THE JUPITER

Antecedents of the Jupiter

(U) Development processes attached to the Jupiter missile are traced to German interests in missilry as early as 1931. In that year, Captain Dornberger, who later rose to the rank of major general, headed a military rocket development program. In 1933 Adolph Hitler visited the army's experimental rocket station at Kummersdorf, but was unimpressed with the developments he saw. Members of the German general staff, however, were. The missile program received firmer support in 1934 because of Field Marshal Werner von Fritsch's interest. At that time von Fritsch was commander-in-chief of the Reichswehr. His successor, Field Marshal Walter von Brauchtisch, gave even firmer support to the rocket program. And by 1937, the program received further impetus with the start of construction of the Penemunde experimental station.[1]

(U) German scientists launched the first full-sized V-2 -- a forerunner of the Jupiter -- in June 1942. The fourth, fired on 3 October 1942, hit the target at a range of 190 kilometers, about 118 miles.[2]

(U) Internal problems harassing the German industrial economy, as well as Hitler's opinions, offset the significant advancements scored by the V-2.[3] For one, proponents of the earlier V-1 were competing for higher priorities. Leaders in the Luftwaffe favored this weapon, the flying bomb. But in March 1943, one source reported

that Hitler had dreamed that the V-2 would never land in England. Therefore, he lost all interest in the V-2 program and directed Reichminister Albert Speer, responsible for wartime production, to cancel the priorities assigned to the V-2.[4]

(U) During the same month, however, Speer sent the chairman of a long-range weapon development committee to salvage what could be used from the V-2 program. After the emissary reported in favor of continuing the program, Speer then arranged for its revival. Soon thereafter, Dornberger and Professor Werhner von Braun, "the technician chiefly responsible for creating the V-2," made a detailed presentation to Hitler. They gained his permission to continue their work and restore production.[5]

(U) Although the V-2 entered World War II too late to become a turning point, it wreaked havoc on the allies. At the time of the German collapse, more than 20,000 V-weapons had been fired. Some sources estimated that 1,115 rockets had been fired at England. Also, 1,675 V-2's were fired at targets on the mainland. Evidence is not available to disclose the number of test firings conducted in the V-1 and V-2 programs.[6]

(U) With the impending collapse of the German government close at hand, U. S. officials put into operation a project --Paperclip-- by which they could recruit as many top-flight German scientists and technicians as possible.[7] Sources reveal that the Secretary of War approved the transfer of the first contingent -- about 130 of these

scientists -- to this country, pending the outcome of interrogations and background investigations.*[8] In addition, U. S. military officials were able to get many plans, manuals, and related documents, as well as about "three hundred boxcar loads" of V-2 material. Following the arrival of 62 scientists and their equipment at Fort Bliss, Texas, American interest in early V-2 developments reached a high level.[9]

(U) During the March 1946 - June 1950 period, the newly transplanted missile team, augmented with American scientists, made significant advancements in missile developments. They fired a total of 52 V-2 weapons; the first on 14 March 1946, and the last on 28 June 1950. During this period they developed the "Corporal" series for the Army.[10]

(U) But a greater event of significance occurred in 1950 that put the Southeastern states in the missile business. Army officials moved its headquarters for its missile programs from Texas to the Redstone Arsenal at Huntsville, Alabama. Before the end of the year, a total of "500 military personnel, 130 German scientists, 180 General Electric contract personnel, and 120 Civil Service employees had moved from Fort Bliss to Redstone."[11]

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* On 18 May 1948, according to one source, there were 1136 German and Austrian scientists, technicians, and dependents in this country. Of this number, 492 were scientists and technicians, and the remaining 644 were dependents. Of the scientists and technicians, the Air Force had the largest number -- 205. The Army had 177. "The largest single group of specialists was associated with the Air Force and the second largest with the Army -- 146 at Wright Field, and 121 at Fort Bliss."

(U) Missile developments were, at this time, leading closer to the Jupiter. Scientists were putting the Army's Redstone missile through its development and production stages.[12] While the Redstone was being perfected, a new missile was in the development stages. This was the Jupiter.

(U) Army Ballistic Missile Agency scientists had to use an available and realiable missile system to test the subsystems and components for the Jupiter. They assembled a "hybrid" missile and called it the Jupiter C.[13] Jupiter C is an abbreviation for "Jupiter Component Re-entry Test Vehicle." Its primary purpose was to "test solutions to the aero-dynamic heating problems faced by the Jupiter's nose cone on re-entering the earth's atmosphere."[14] The main stage of this hybrid missile was a Redstone. According to an Army Ordnance Missile Command publication, the[15]

> second, third, and fourth stage propellant motors are added to the first-stage liquid-fueled Redstone. There are eleven scaled-down Sergeant motors in the second stage, and three in the third, arranged in cylindrical clusters. The fourth stage is a single motor.

Initial launching of this hybrid missile occurred on 20 September 1956. On this mission it hurled its payload in excess of 3,300 miles downrange from the launch pad at Cape Canaveral, Florida.[16] And on 8 August 1957, another "C" sent a scale model of a nose cone for the Jupiter more than 1,200 miles downrange. The nose cone reached an altitude in excess of 600 miles during this flight.[17] These previously mentioned missiles--the V-1 through the Jupiter C--were the antecedents of the Jupiter.[18]

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Capabilities

[redacted] The Jupiter has proven its accuracy and reliability at all ranges. It is effective from a minimum range of 300 nautical miles to a maximum of 1,500 nautical miles, while hurling a 1,600-pound warhead. Converted to land measure, its range would be from a minimum of 345.24 miles to a maximum range of 1,726.2 miles. At the maximum range, its circular probable error factor is computed at 1,500 meters, or 4,920 feet.[19]

[redacted] Concerning target selection, crews can change from a primary to a secondary target during the fifteen-minute countdown. Should a requirement arise calling for a new pair of primary and secondary targets, crews could set these new selections into the system and check them out in a maximum time of two hours. This can be accomplished without disturbing the missile or its supporting equipment.[20]

[redacted] The warhead is equipped with several safety devices. These devices can prevent explosions from occurring during ground operations or during the early period of flight. Also, the warhead has a safety device that prevents an explosion over friendly territories. The type of burst--either aerial or ground--can be selected during the fifteen-minute countdown period.[21]

Description

[redacted] The Jupiter is composed of a semi-monocoque airframe*, a

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*The U. S. Air Force Dictionary defines monocoque as "a type of airplane construction in which the skin of the fuselage bears the primary stresses arising in the fuselage. If /the monocoque is/ provided with longerons, it becomes a semi-monocoque." The same source defines longeron as "any relatively heavy longitudinal structural member.....usually running continuously across a number of formers."

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liquid-propelled rocket engine, an inertial guidance and control system,* and a nuclear payload.[22]

[redacted] The Jupiter is divided into three major assemblies. These are the warhead unit, the aft unit, and the power unit.[23]

[redacted] The warhead unit is comprised of the nose cone, the warhead with its safety and arming devices, and the power supplies for activating the warhead. Overall, this unit is an air-tight, riveted structure consisting of a conical aluminum alloy shell that is reinforced with stiffener rings. Also, it has a dish-shaped bulkhead at the rear. The nose cone is designed to withstand the intense heat and pressures during re-entry. While re-entering the earth's atmosphere, the layers of protective material on the nose cone shield the warhead and its mechanisms. These materials are a combination of fibreglass, plastic, and asbestos. When exposed to the heat, they absorb it and melt, or ablate.**[24]

[redacted] The aft unit, according to an ABMA orientation handbook,[25]

> is a truncated cone which houses most of the guidance and control components and the vernier engine. The unit structure is composed of an aluminum alloy shell, stiffener rings, a pressure tight, dish-shaped bulkhead, which divides the aft unit into two sections. The forward section contains the guidance and control components. The forward section is divided into four compartments by a crossed partition on which the components are mounted. The rear section houses the vernier engine, the spatial attitude system, and the spin rockets. Since it is not practical to effect

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* An onboard guidance system where gyros, accelerometers, and possibly a gyro-stabilized platform satisfy guidance requirements without the use of any ground-located components; entirely automatic, following predetermined trajectory.

** This differs from another principle--the heat sink. This means the storing of heat in a large mass of material that has a high thermal capacity.

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> an accurate termination of thrust of the large main engine, it is cut off and the power unit is separated prior to attaining final programmed velocity. Then, if necessary, the vernier engine is fired and further accelerates the remainder of the missile to the final desired velocity. As the name indicates, thrust termination of the vernier engine may be accurately controlled. The spatial attitude system consists basically of a fibreglass nitrogen storage sphere and four pairs of opposed jet nozzles equally spaced around the aft unit circumferences. By discharging high pressure nitrogen from appropriate nozzles, forces may be exerted in yaw, pitch, or roll directions to maintain the desired attitude. The spin rockets are solid propellant rockets which impart a spin to the warhead and aft unit combination prior to re-entry.

[redacted] The aft and warhead units are joined by a ring of 52 aluminum bolts. A line containing an explosive charge is threaded next to the ring of bolts. When detonation occurs at the appropriate time in flight, all bolts are severed and the two units--aft and warhead--are separated by the internal pressure in the aft unit.[26]

[redacted] The power unit, according to the description in the ABMA handbook, is a[27]

> 105-inch diameter cylinder containing the center section, the tail section, the main rocket engine and all associated plumbing and wiring. The center section is a cylinder fabricated of machined aluminum alloy skin strengthened by stiffener rings spot welded to the skin. Three sealed bulkheads are located to divide the center section into two tanks. The RP-1 fuel tank, located above the liquid oxygen tank, contains perforated, truncated cone type baffles to reduce the dynamic effects of fluid sloshing during the planned missile pitch program. The liquid oxygen tank also contains perforated anti-slosh baffles for the above reason, but these are eight accordian shaped strips placed length-wise within the tank. The fuel supply line extends through the liquid oxygen tank and is insulated from the extreme low temperature of liquid oxygen. Provisions are made for connecting electrical and pneumatic lines from components forward of the

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propellant tanks to the tail section by running an aluminum conduit through the tanks.
The tail section of the power unit has a corrugated skin.....stiffened with riveted rings. The main rocket engine, NAA S-3D, develops a thrust of 150,000 pounds at sea level and is attached to the tail section by a three point, single plane mounting system. A partial bulkhead, three longitudinal tapered box beams, and three compression struts transfer the engine loads to the missile. The main engine is capable of being gimballed by hydraulic actuation, which is controlled by the guidance and control system. Engine gimballing provides propulsion forces in the missile yaw and pitch directions. A major component of the main engine assembly is the turbopump, which force-feeds propellants and maintains hydraulic system pressure. The turbopump, which also drives the hydraulic pump through an auxiliary drive shaft, is driven by hot gases, developed by liquid propellants burning in the gas generator. The hot gases are then exhausted just forward of the aft end of the missile. The direction of the exhaust is controlled in a similar manner to the engine gimballing, thus provding a propulsive force for missile roll control.
The power unit is attached to the aft unit by six explosive bolts. At the appropriate flight time the bolts are detonated, after which six compressed helical springs effect separation of the power and aft units.

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CHAPTER III: MAJOR MANAGEMENT DEVELOPMENTS

(U) Secretary of Defense Charles E. Wilson's 26 November 1956 Memorandum had a far-reaching effect--as later events have proved--on Headquarters, Mobile Air Materiel Area. His memorandum to the Armed Forces Policy Council defined the responsibilities assigned to the three Armed Services.[1] According to his directive, "Operational employment of the land-based Intermediate Range Ballistic Missile system will be the sole responsibility of the U. S. Air Force."[2] Secretary Wilson, however, did not "prohibit the Army from making limited feasibility studies in this area."[3]

(U) In February 1958, a series of developments pointed to the role that Headquarters, MOAMA, would assume in the Air Force missile program. On 3 February 1958, Headquarters, USAF, assigned the executive management responsibility for the Jupiter weapon system to the Air Materiel Command.[4] A few days later--12 February--the Air Force established the Jupiter weapon system project office at the Inglewood, California, complex.[5*]

(U) On the next day, Brigadier General Ben I. Funk, Deputy Director Ballistic Missiles, Directorate of Procurement and Production, Headquarters, AMC, submitted a staff study to the Commander, AMC,

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* DeHaven's AMC Participation in the AF Ballistic Missiles Program (1 January - 30 June 1958) Part I, Vol I, p. 5, discloses that the complex, at that time, was comprised of the ARDC's Air Force Ballistic Missiles Division, the Space Technology Laboratories under contract as the weapon systems engineering directors, and the Ballistic Missiles Office." Also, elements of the Strategic Air Command /SAC-MIKE/ were located at the Inglewood complex.

about the possiblity of assigning the Jupiter to the MOAMA.[6] The study outlined four criteria that the staff had established as its objectives. In the first place, the prime goal was to transplant and infuse the Air Force concept of ballistic missile management into the Jupiter program. Secondly, to provide surveillance, guidance, and assistance to the Army so that the transition from the Army concept to the Air Force management philosophy could be accomplished without disrupting production and deployment schedules. This would be in accordance with the proposed Interservice Agreement. Thirdly, to seek a high degree of uniformity "particularly as to the IRBM - GSE."[7] In this area they hoped to obtain maximum use of Air Force Thor experience, especially in the area of ground support equipment. And lastly, to put into effect this principle of uniformity immediately "and on a progressive basis" so that deployment schedules could be attained.[8]

(U) The staff study contained three possible courses of action. In the first place, the Air Force could assign the ballistic missile management role of the Jupiter to the Ballistic Missile Office and look to the San Bernardino Air Materiel Area for logistic support. Secondly, the Air Force could assign the management role to the MOAMA; that headquarters could man the AFJUPLO, and also provide its own logistic support. Finally, the Air Force could assign the management role of the Jupiter to the Ballistic Missiles Office with the MOAMA manning the AFJUPLO and providing its logistic support for the weapon system.

(U) After evaluating these possible courses of action, the staff noted that a compromise was evident, since none of these plans

appeared to satisfy all of the key factors involved. They noted that it was not feasible to assign weapon system management functions to the MOAMA "at the outset."[9] However, the MOAMA could accomplish the logistic support functions for the Jupiter to the extent that the SBAMA was currently performing for the Thor. Also, the MOAMA could provide manning and support of the AFJUPLO "at this time."[10] And at a later date, when the MOAMA had acquired the desired capability, the missile management assignment could then be transferred to that headquarters.

(U) In conclusion, the staff believed that the assignments should be made in the following sequences. Initially, assign the missile management function for the Jupiter to the current manager at the Inglewood complex. Secondly, assign the logistic support functions and manning responsibility of AFJUPLO to the MOAMA. Finally, "when MOAMA has acquired BMM /ballistic missile management/ capability, assign /the/ Jupiter BMM function to MOAMA."[11]

(U) On 27 February, General Edwin W. Rawlings, Commander, AMC, put into effect the conclusions outlined in the staff study. He stated that the recently established Jupiter project office at Inglewood would require the support of "an AMA Logistic Support Manager and a liaison office (JUPLO) at Huntsville, Alabama."[12] Further, the Army Ballistic Missile Agency would be responsible for developing and producing the missile. General Rawlings then designated Headquarters, MOAMA, as the logistic support manager for the Jupiter weapon system.[13]

(U) Colonel E. M. Tally, Jr., Deputy Director, Plans and Programs, Directorate of Plans and Programs, Headquarters, AMC, informed General Rawlings on 17 April 1958, that General Funk and General

Callahan had prepared a plan for supporting the Jupiter. According to their plan, the AMC would shift control of the missile from General Funk to General Callahan. Colonel Tally pointed out that such a transfer was "consistent with the requirement to develop additional ballistic missile capability and appears to be a logical solution." He then stated that they would proceed with putting the plan into operation.[14]

Early Plans for Jupiter Management

(U) General Funk and General Callahan presented their views on managing the program to General Rawlings on 3 April 1958. They first noted the Army's role in the logistics support of the missile. Further, that the AFJUPLO--located at the Army Ballistic Missile Agency, Redstone Arsenal, Alabama--would provide the vertical weapon system management. Therefore, they believed that the logistics manager responsibilities at the Mobile headquarters "should be integrated into the present organization."[15] Consequently, all local management resources would be available for planning, programming, and operating the missile logistics system.

(U) Officials at Headquarters, MOAMA, were putting their plans into operation to handle this newly-acquired responsibility. They were setting up SM-78 work groups in the directorates and offices. Key personnel were moving into the AFJUPLO. However, the local headquarters was retaining these workers on its personnel strength reports. They--employees at AFJUPLO--would report to the MOAMA management group through their chief.

(U) Although the nerve center for logistics support was at the local headquarters, the pulse beat--procurement, production, engineering, and other related functions--was strongest at the AFJUPLO. The logistics group at Redstone, in addition to supporting and monitoring Army operations in procurement, production, and logistics support, would assist the MOAMA managers in developing plans for phasing the management and operations of the logistics system to the MOAMA.

(U) General Callahan informed the AMC Commander that the AFJUPLO was in place and "now manned sufficiently to perform a support and surveillance function" in the AMC, ARDC, ATC, and SAC mission areas. Negotiations at Secretarial level, however, would determine the ultimate size and function of the AFJUPLO organization, particularly those in the programming and funding areas. "In any event," AFJUPLO would have a chief, supported by a program control office assigned to, and reporting to the AMC Ballistic Missiles Manager.[16] Groups specializing in logistics for their respective commands, such as ARDC, ATC and SAC-MIKE, would operate in their specific areas through the Chief, AFJUPLO. In conclusion, General Funk and General Callahan requested that an early conclusion of negotiations between the Army and Air Force concerning the Jupiter was of utmost importance to define more specifically the functions of the MOAMA and the AFJUPLO "for the present as well as the future."[17]

(U) By 14 April, local officials had completed a study of the requirements needed to assume the logistics support management of the Jupiter. In fact the Ballistics Missiles Manager, General Funk, had agreed to transfer the Industrial Operations and Logistics Division

within the AFJUPLO to the MOAMA as of 15 April 1958. The study revealed that a total of 142 persons were required to operate the logistics management of the program. Of this amount, local officials planned to assign 22 to the Logistics Operation at AFJUPLO, three to the overseas liaison office, and the remaining 117 to systems offices within the MOAMA directorates and staff offices. General Callahan pointed out, however, that "personnel (quantities and skills) assigned to AFJUPLO and the overseas Liaison Office...../would/ vary periodically as requirements dictate."[18]

(U) MOAMA management personnel then presented their requirements to Headquarters, AMC, for approval. They pointed out that the number of people needed to operate the logistics system was based "on the most current programming information available." However, they also noted that "as plans and workload materialize, adjustments in manning requirements... /would/ be necessary."[19]

Transfer of Logistics and Industrial Operations to MOAMA

(U) Headquarters, MOAMA, reached another milestone in the Jupiter program on 1 July 1958. Effective that date, Headquarters, AMC, announced that it had transferred the logistics and industrial operations functions of the AFJUPLO, located at the Army Ballistic Missile Agency, Redstone Arsenal, Alabama, from the AMC Ballistic Missile Manager to the Commander, MOAMA. Accordingly, manpower officials at the Dayton headquarters revised the MOAMA military and civilian authorizations to reflect this change.[20]

Objectives to Accomplish Before the Transfer of the Jupiter LSM

(U) On 10 July 1958, Brigadier General J. A. Barclay, Commander, Army Ballistic Missile Agency, Redstone Arsenal, wrote to General Callahan about the latter's proposal to transfer the Jupiter logistics management responsibilities to the MOAMA. General Barclay noted that Army-Air Force personnel had already reached two general areas of agreement. First, Air Force people were working "side-by-side" with Army employees. Secondly, Army officials had agreed to a target date of 1 April 1959, for transferring the logistics support responsibility to the MOAMA.[21]

(U) General Barclay believed there were other objectives that had to be accomplished before the Army would transfer logistics responsibility. He asked General Callahan for his concurrence in this matter. The Agency Commander assumed that "all the major objectives specified below would be complete by 1 April 1959."[22] These included:[23]

1. 1st Squadron Deployment.
2. Maintenance analysis of known items.
3. Provisioning of spares and spare parts for 1st and Second Squadrons.
4. Initial distribution of required technical manuals.
5. Establishment of Federal Cataloging Program.
6. Replenishment action (follow-on requirements) for 1st Squadron.
7. Maintenance Support program for training requirements.
8. Activation (operation) of Contractor Storage Sites.
9. Communications network.
10. Implementation of Transportation System (AF Responsibility).
11. Establishment of Accountable Records.
12. Publication of WSSCL (Weapon System Stock Control List).
13. Packaging by USAF Specification.
14. Finalization of TTE (Tentative Table of Equipment).
15. Finalization of UAL (Unit Allowance List).
16. Operation of supply distribution system.
17. Comprehensive plans for logistics support.
18. Implementation of failure and consumption data reporting.
19. Implementation of AFM 67-1, Vol. XXIII procedures (AF Supply Manual).

(U) In his reply, General Callahan wrote that he and General Funk agreed that plans to establish a target date "to coincide with the accomplishment of these objectives" had merit.[24] Further, he and General Funk had recommended to the AMC Commander that 1 April 1959, be set as the target date for accomplishing the objectives and transferring Jupiter logistics support responsibilities to the Mobile headquarters. In conclusion, the MOAMA Commander informed General Barclay that he had received concurrence from Headquarters, AMC, for the accomplishment of these objectives as well as the established target date.[25]

(U) On 13 November 1958, Mr. John A. Rega, of the Army's Jupiter Support Management Office, and Major David A. Rich, of the Air Force Jupiter Liaison Office, agreed to a plan to transfer the responsibility for logistics functions from the Army Ballistic Missile Agency to the MOAMA. Target dates agreed upon for transferring some of the functions would not be binding if they interfered with support functions "currently assigned" to the Army's Jupiter Support Management Office. Functional areas that were a part of the plan, "or areas requiring further coordination" were as follows:[26]

A. Transfer of Accountability
B. Transfer of Due In Assets Records
C. Master Tech Data File
D. Voucher Control
E. Shipment Control
F. Equipment Authorization
G. Provisioning
H. Cataloging
I. Development of Interchangeability Substitution and Standard Item Usage Data
J. Development of Procurement Data Records
K. Contract or Storage Sites
L. Packaging
M. Transportation

N. Communications
O. Maintenance Analysis
P. Technical & Engineering Data
Q. Contract Technical Representatives
R. Depot Level Maintenance of Peculiar Equipment
S. Modifications
T. Calibration
U. Material Deficiency Reports
V. Material Improvement Projects

(U) By 21 November 1958, Colonel John E. Devine, Deputy Chief, AFJUPLO, noted that representatives of the ABMA and his organization had coordinated on plans to transfer responsibility for functional areas I, J, and L to the MOAMA. He also noted that they established target dates for transferring functional areas P, S, T, U, and V.[27]

Transfer of Executive Management Responsibility

(U) On 4 December 1958, General Funk wrote to Headquarters, AMC, requesting that the Dayton headquarters transfer the executive management responsibility for the Jupiter to the MOAMA. In his letter, General Funk stated that "General Callahan joins me in recommending that..... the transfer be made effective 1 January 1959."[28]

(U) The Ballistic Missiles Center Commander also inclosed a proposed AMC Letter outlining the transfer. The specific functions included the transfer of executive management responsibility and the chairmanship of the weapon system phasing group.

(U) On 17 December 1958, General McKee informed General Callahan that the AMC headquarters would transfer executive management of the Jupiter effective 1 January 1959. Futhermore, the AMC Ballistic Missiles Center would not retain any management responsibilities associated with the Jupiter.[29]

(U) Confirmation of this realignment came swiftly. AMC General Orders Number One, dated 2 January 1959,[30] disclosed that

> The Air Force Jupiter Liaison Office (AFJUPLO) at Redstone Arsenal, Huntsville, Alabama is relieved from assignment to the Air Materiel Command Ballistic Missiles Center and is assigned to the Mobile Air Materiel Area, effective 1 January 1959.

(U) Command and Air Force regulations spelled out the MOAMA Commander's role in the Jupiter program. According to Appendix 2, AMC Regulation Number 23-1, dated 1 January 1959, General Callahan was responsible for accomplishing "the executive management responsibilities for the SM-78 (Jupiter) weapon system as prescribed by AFR 20-10."[31] The latter directive, dated 24 March 1958,[32] defined executive management responsibility as

> the state of being primarily accountable or answerable for the initiation, direction, supervision of, and results pertaining to timely actions required on any part or phase of the weapon system.

(U) These, then, were some of the significant developments that resulted from Secretary of Defense Wilson's memorandum, dated 26 November 1956. First, the Air Force received control of all land-based intermediate range ballistic missiles. Secondly, and in a relatively short period of time, the MOAMA became the executive manager for the Jupiter.[33]

CHAPTER IV: THE MANAGEMENT ORGANIZATION

(U) Just what did the new assignment mean to the MOAMA? What were the organizations involved in the Jupiter's management? What were the lines of communications between these organizations?

LSM and Executive Management Responsibilities

(U) In answering the first question, a review of the logistic support management responsibilities that were assigned earlier would be in order. First, the logistic support manager would serve as an advisor and management control point for logistic support actions for the Jupiter. Also, he would provide representation to the weapon system phasing group, maintain cognizance, status, and take action to insure the correct phasing of actions required of all collateral air materiel areas and depots that were supporting the Jupiter. As the system manager he was responsible for providing additional planning, programming, and phasing data to other areas and depots that had a collateral interest or responsibilities to perform for the weapon system.[1]

(U) As the MOAMA became the "stateside center of gravity" for the Jupiter, the logistic support manager served as the Air Materiel Command's focal point for the other commands on matters pertaining to the Jupiter. It was his duty to act as the "AMC worldwide agent on all operational, supply, maintenance, procurement, and support functions" relating to the system. He had to insure that the required degree of logistic support was provided to the using commands.[2]

(U) According to AMCR 375-1, dated 25 July 1958, the logistic support manager had these additional responsibilities:[3]

> Planning, programming, and the computation of requirements for all materiel and services related to that materiel required for the direct logistic support of the assigned weapon system. This includes both the airborne elements of the weapon system and the ground support/ground handling equipment required at the operational site or complex (within the selected materiel categories).
>
> Develop budget estimates and be funded for materiel and services necessary for the logistic support of advanced weapon systems.
>
> Supply materiel management and prime maintenance for all materiel and services peculiar to the assigned weapon system, subsystems, and related ground support/ground handling equipment. Any exceptions will be indicated by this Headquarters in the logistic concept of guidance, together with the AMA/AFD that is to be assigned supply and maintenance responsibilities.
>
> Specialized maintenance for peculiar materiel and services identified /in the preceding paragraph/ . . . , subject to Hq AMC approval.
>
> Procurement of materiel and services peculiar to assigned weapon system as delegated or approved by Hq AMC.
>
> Training of AMC personnel as required to perform these functions.

(U) As mentioned earlier, the Headquarters, AMC decision to assign executive management responsibility for the Jupiter to MOAMA was the clincher, insofar as total management responsibilities were concerned. According to Air Force Regulation 20-10, dated 24 March 1958,[4] executive management responsibility was defined as

> the state of being primarily accountable or answerable for the initiation, direction, supervision of, and results pertaining to timely actions required on any part or phase of the weapon system.*

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* Underlining added for emphasis.

[redacted]

Organizations Involved in Jupiter Management

[redacted] On 12 December 1958, Major Generals Gabriel P. Disosway,* Ben I. Funk,** and Dan F. Callahan*** signed a Memorandum of Agreement that outlined the organizational relationships and responsibilities for deploying and supporting the Jupiter. The memorandum put into proper perspective the roles of the MOAMA--its executive management responsibility as well as logistic support management. In addition, it outlined the responsibilities of the MOAMA's European managerial organization. It also outlined the responsibilities of Headquarters, United States Air Force, Europe (hereafter referred to as USAFE). Earlier, a USAF message had designated Hq USAFE as the USAF command "with overall responsibility, and the USAF point of contact overseas, for matters pertaining to all NATO IRBM programs, and other coordinating commands."[5]

[redacted] There were several agencies involved in Jupiter deployment. These included the Army Ballistic Missile Agency's Detachment C and the United States Association for Technical Assistance, (USAFTA), a subsidiary of Chrysler Corporation Missile Division. Detachment C represented the Army Ballistic Missile Agency at the overseas sites. The Agency, in turn, was responsible for the technical development, engineering support, and installation and checkout of the Jupiter at the installations. Also, the Agency was responsible for exercising

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* Deputy Commander, USAFE
** Commander, Ballistic Missiles Center
*** Commander, Mobile Air Materiel Area

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contract administration of Jupiter contracts plus the responsibility of procuring hardware and services, "including technical representatives" as stated in the inter-service agreements.[6]

The November 1959 Memorandum of Agreement

[redacted] A year after signing the first memorandum of agreement, officials participating in the Jupiter deployment went further in outlining functions and clarifying the relationships of the various agencies. The agencies involved were the USAFE IRBM Liaison Office located at the Military Assistance Advisory Group (MAAG) in Rome, Italy; the MAAG IRBM Project Office in Rome; the JEFO located at the deployment site; the ABMA Detachment C located at the deployment site, together with the United States Association for Technical Assistance installation and checkout team; and the 7230th Technical Training Group that was also located at the deployment site.[7]

[redacted] The new agreement revealed that the various agencies would collaborate on a teamwork basis. Overall policy guidance remained the domain of the USAFE IRBM Liaison Office, representing Hq USAFE. Also, the Commander-in-Chief, USAFE, retained the command jurisdiction and control of the 7230th Technical Training Group.[8]

[redacted] The memorandum authorized direct communications between each agency and its parent command. However, the chief of each agency would effect proper coordination with the other agencies. Also, the chief of JEFO and the MAAG IRBM project office would insure that the Chief of the USAF IRBM Liaison Office would be kept "fully informed on all matters of interest to Hq USAFE....."[9]

[redacted]

[redacted]

[redacted] The chief of JEFO, who was the theater representative of the stateside executive agent, Commander, MOAMA, would remain as the point of contact for the Chief, USAFE IRBM Liaison Office on matters relating to installation and checkout functions. In addition, he was the theater's single point of contact for the USAFE IRBM Liaison Office and the Commander, 7230th Technical Training Group in all matters associated with the AMC support of the Jupiter.[10]

[redacted] The commander of Detachment C and the chief of the JEFO, respectively, were designated as the "on-site representatives of the Procuring Agency /Army/ and the Requiring Agency /Air Force/." They were to carry out their functions as established under the Military Interdepartmental Procurement Regulations procedures. Also, they had to establish daily working relations and communication channels to bring the Jupiter program to an early and effective capability.[11]

Functions of Participating Agencies

[redacted] According to this 1959 agreement, the USAFE Liaison Office had eight functions to perform in order to bring the Jupiter to its earliest operational capability. This office was the advance element and single point of contact of Hq USAFE in Italy. Its parent organization--Hq USAFE--was the executive agent for the Jupiter system in Europe. The liaison office was also responsible for accomplishing and monitoring of USAFE functions in the host country. Secondly, the USAFE Liaison Office had as its function the responsibility of negotiating agreements, amendments, and memoranda of understanding that involved

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the host country, the U. S. Embassy, the MAAG, Hq USAFE, and JEFO. Thirdly, it furnished JEFO with Hq USAFE policy direction on deployment matters. Also, the Liaison Office assisted the Jupiter missile squadrons and the JEFO by obtaining policy resolutions "in problem areas concerning U.S./Host Country Agreements and/or understanding."[12]

[redacted] The USAFE Liaison Office's fifth major function was to provide Hq USAFE with reports--periodic and special--on the status of deployment and operations in the host country. As a seventh function, the Liaison Office served as an expediter in matters concerning the deployment and operation of the Jupiter weapon system in Italy. And finally, it was the Liaison Office responsibility to provide JEFO with administrative assistance in speeding up Jupiter negotiations that were being conducted in the Rome area.

[redacted] The Military Assistance Advisory Group (MAAG) was another focal point having specific functions concerning Jupiter deployment. First, it assisted the Liaison Office in establishing points of contact with the Italian Air Force. A second function was to watch closely over all actions concerned with putting into effect the USAF/IAF technical agreements. The long range objective of this function was to develop a capability to assume all normal administrative and logistical responsibilities. Another function was to collaborate with Hq USAFE in developing budget requirements. This included requirements being established in line with MAP programming instructions prior to submitting them to the Department of the Air Force for programming action and later funding action. The MAAG also furnished assistance and counsel

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to the Liaison Office and the JEFO concerning the delivery and accounting for initial end items of equipment as well as follow-on materiel support to the Italian Air Force under MAP procedures.[13]

[redacted] The four remaining functions assigned to the MAAG involved the: (1) performance of normal administrative tasks associated with the putting into operation the Italian Air Force training program; (2) submission of MAAG reports; (3) controlling of the direct mission logistical support to the Italian Air Force by JEFO and the logistic support manager. This was significant to the extent that the MAAG could develop a capability in this area and put it to use after MOAMA would make the decision to withdraw the JEFO from Italy. As its final function, the MAAG was charged with monitoring the indirect mission logistics support provided to the Italian Air Force by the 7230th Technical Training Group. Thus, the MAAG would develop a capability to help the Italian Air Force obtain U. S. Air Force logistics support on USAF-furnished indirect mission equipments through MAP channels.[14]

[redacted] Heading the list of functions assigned to the 7230th Technical Training Group was the assignment of command control of all USAF personnel attached to the Italian Air Force IRBM Brigade. Secondly, when emergency conditions existed, the 7230th controlled all U. S. personnel in the deployment site area. Thirdly, the Group served as the senior technical advisor to the Italian Air Force IRBM Brigade Commander. As a fourth function, the Group had the responsibility of putting into operation at the site all USAFE policies and

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objectives. Also, the Group represented the Air Force in negotiations with the Italian Air Force on base agreements. Its sixth function was to allocate on-base facilities and areas to the U. S. organizations that were assigned to the base. Additionally, the Group provided the usual base support functions--administrative, logistics, and so forth--to U. S. personnel assigned to the IRBM base, including JEFO and ABMA personnel. The MAAG also furnished these services on an "as available basis" to CTSP* and contractor personnel of the installation and checkout team. And lastly, the Group provided supply and maintenance functions on all USAF-indirect mission items and all standard Air Force vehicles, as well as obtaining depot level logistics support through normal theater materiel channels. When the Italian Air Force attained the capability to operate and maintain all elements of the Jupiter system, the 7230th Technical Training Group, except for the Warhead Custodial Detachment, would then phase out of Italy.[15]

[redacted] The JEFO functions were broad and numerous inasmuch as the Office was serving as the European theater representative of the AFJUPLO as well as representing the Mobile Air Materiel Area, which was the Zone of Interior Executive Agent. The JEFO was a local point of contact for USAFE and other theater agencies with ABMA, AFJUPLO, MOAMA, and other AMC agencies. It also provided USAF policy guidance to Detachment C on deployment matters. Also, the JEFO was responsible for coordinating for AMC on putting into effect actions required by the

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* Contractor Technical Services Personnel

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USAF/IAF technical agreements. These included such actions pertaining to the facilities construction program, time phasing all of the AMC actions involved in transportation and the installation and checkout program. It was also a JEFO function to establish realistic beneficial occupancy dates for the launch positions and technical facilities, and to notify USAFE of these dates. This was significant inasmuch as timely action in this area would speed up the accomplishment of installation and checkout that would lead to the scheduled transfer of operable launch position to USAFE. Likewise, the Office was authorized to recommend changes in schedules, if the existing schedules were not feasible.[16]

[redacted] The Jupiter European Field Office also had the responsibility to monitor the transportation of materiel from the U. S. to the Italian port of entry and advising local agencies of shipping schedules, as well as following up on delayed equipment deliveries. Further, the JEFO made arrangements for transferring equipment to Italy in line with MAP procedures. It also provided command assistance to, as well as surveillance and acceptance of, the installation and checkout efforts performed by ABMA. The Office also had the responsibility for arranging the transfer of operable launch positions and technical facilities from the AMC to the Italian Air Force.[17]

[redacted] In the area of supply support to the Italian Air Force, JEFO had as its function the monitoring of direct mission items, as well as providing assistance on transaction reporting procedures. The

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Office also advised the logistics support manager of problem areas in supply support as well as recommending changes as required.

[redacted] According to the November 1959 agreement,[18] the Jupiter European Field Office had these additional functions to perform:

> Assists in the provision of AMC-level maintenance assistance to the missile squadrons, including technical manual and calibration services. Assists as necessary to planning for field retrofit changes and depot level maintenance services, and monitors the accomplishment thereof. Monitors and assists in the application of maintenance failure rate and consumption reporting procedures.
>
> Arranges for AMC Technical Assistance on the Jupiter Weapon System. Technical Assistance on the Jupiter Weapon System shall be provided through Detachment C, ABMA, Technical assistance on C & E* problems related to LOGBALNET** operations shall be provided through in on-call service on BMC/EFO.***
>
> JEFO will begin a phased withdrawal from Italy to the country selected for deployment of the third Jupiter Squadron in accordance with the approved deployment schedule. As the Italian missile squadrons become thoroughly familiarized with the specialized aspects of the direct logistics support from the LSM, the phase-out of JEFO will be completed and the MAAG will assume the residual logistical advisory functions. (AMFEA**** will provide any AMC assistance required by the MAAG at that time).

[redacted] The Army Ballistic Missile Agency representative in the European theater, Detachment C, had six functions to perform in bringing the Jupiter system to its operational capability. Initially, Detachment C was responsible for the installation and checkout of the system at the deployment site. Secondly, it was responsible for providing management,

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* Communications and electronics
** Logistics Ballistics Network
*** Ballistic Missile Center European Field Office
**** Air Materiel Force, European Area

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[redacted]

"technical direction, supervision and acceptance of the weapon system prime contractor's efforts involved with installation and checkout."[19] The Detachment was also responsible for providing "supplementary off-shore procurement services," if required, to support installation and checkout operations. In this area, Detachment C assisted the United States Association for Technical Assistance installation and checkout team by furnishing procurement services through the Army's procurement offices in the theater. Detachment C also had to certify to the Air Force[20]

> that the installation and checkout functions have been satisfactorily performed on specified increments of the weapon system and that the specified increment is fully operable, or operable with contingencies.

[redacted] The November 1959 agreement also disclosed that[21]

> as each specified increment of the installation and checkout effort is completed, and accepted by Detachment C, ABMA and JEFO, personnel of Detachment C, ABMA will phase on to the remaining increments, with those contractor personnel earmarked for the CTSP program phasing over in accordance with schedules approved by the 7230th Technical Training Group, to CTSP duties for assistance to the missile squadron in operation and maintenance of those increments which have been turned over to USAFE, or the IAF, as the case may be.
>
> Detachment C, ABMA, will begin a phased withdrawal from Italy to the country selected for deployment of the third Jupiter squadron in accordance with the approved deployment schedule.

[redacted] Two significant contract awards in 1960 indicated that a change in the Jupiter management organization would take place. On 2 August 1960, the MOAMA awarded a letter contract to the USAFTA for the procurement and installation of a communications system in Turkey. And on 15 September, MOAMA officials awarded a letter contract to the

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Chrysler Corporation Missile Division for the installation and checkout, in Turkey, of one Jupiter squadron with its supporting facilities. This latter contract required the contractor to perform his work in accordance with Air Force quality control specifications.[22]

[redacted] As a result of these contractual instruments, the Jupiter management organization in Turkey differed in one respect from that used in Italy. The Jupiter European Field Office assumed all management functions previously performed by the Army's Detachment C. Thus, the Air Force had complete surveillance and control of all actions associated with installation and checkout of the Jupiter squadron in Turkey.[23]

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CHAPTER V: OPERATIONAL PLANNING

Introduction

(U) One of the main problems affecting Jupiter deployment was selecting and negotiating with a suitable host country. But there were significant factors involved in arriving at a suitable country selection. For instance, diplomatic uncertainties were bones of contention. Ironing out individual items in country-to-country agreements could, in themselves, become time-consuming. At the next level were problems involving Air Force - Air Force agreements. There were other problems relating to site construction, training, turning over positions to host countries, to mention only a few.

Negotiations with France

[redacted] A significant example of diplomatic uncertainties affecting deployment occurred during negotiations with the French government. In March 1958, France and the United States agreed on introducing IRBMs for defending NATO countries.[1] Soon thereafter, the French government issued a statement of interest. Based on this disclosure, the U. S. Secretary of Defense directed the USAF to initiate negotiations with the French Air Force regarding Jupiter deployment.[2] In early May 1958, representatives of the two Air Forces--U.S. and French--reached a basic understanding. The fall of the French government, however, negated these developments. One source revealed that the French government placed Brigadier General Jacques Martin, Chief of the French Air Force delegation that was negotiating with the USAF team,

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under house arrest.[3*] It soon became apparent that succeeding governments, including General Charles DeGaulle's, were not interested in continuing these negotiations.[4]

Alaska as a Possible Site

[redacted] Because of this sudden change in deployment planning, the Office of the Secretary of Defense directed the Air Force to begin action for locating a Jupiter squadron in Alaska.[5] Early studies revealed that the missile system was operable under Alaskan climatic conditions. Although there was some opposition to Alaskan deployment,[**] active planning in this area continued through September 1958, with squadron operations to begin in December of that year. However, the Air Force suspended planning for this deployment because of Italian interest in acquiring IRBMs.[6]

Negotiations with Italy

[redacted] Although representatives of both governments signed the Country-to-Country Agreement on 26 March 1959,[7] diplomatic negotiations with Italy did produce some degree of progress by late 1958.[8] Tentative agreement at that level disclosed that Gioia Del Colle, Barin, would be the

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* Another source disclosed that "French Prime Minister Pflimlin's Government ordered General Martin and the FAF's Air Deputy, Lieutenant General Andre Challe, into forced retirement. General Paul Ely, Chairman of the French Chiefs of Staff, resigned in protest against their removal."

** (S) According to SAC Historical Study No. 72, "Participation in the Missile Program, 1 January 1958 - 30 June 1958, Chapter I, p. 30, "CINSAC, however, entertained strong reservations about deploying a Jupiter squadron to Alaska and believed that to do so would be a grave mistake. He recommended that it be deployed in Italy, in lieu of France, and if deployment to either place was impossible, not to deploy it at all."

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[redacted]

site for the first squadron; Foggia, Gina Lisa, would be the location for the second squadron.* Although this was an indication of progress leading to deployment, it became more apparent that actual deployment in the initial stages would not meet the Department of Defense scheduled date of December 1958. In acknowledging this delay, Headquarters USAF established a "sliding date" for deployment; in effect, Air Force officials stated that the first squadron deployment would be "60 to 120 days following final government approval of an IRBM agreement."[9]

[redacted] Final government approval of an IRBM agreement, however, required signing technical agreements between the the two Air Forces. Of necessity, USAF officials had to retain flexibility in the sliding "M" day concept because of the extended time required to get the USAF/IAF technical agreements signed. Major problems involved the substitution of common items that could be produced in Italy and reimbursing the host country for off-shore procurement. State Department officials and Department of the Air Force representatives, however, agreed to buying common items in the host country. The Air Force, at this time, wanted to determine if the Italian industry could provide locally procured items in time to support the Jupiter program. In those areas where the host country could support the program, they should be allowed; and in those areas where the local industry could not support the program, the USAF would supply the items until the Italian industry developed its capability to do so.[10]

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* By June 1959, officials had agreed to use the single RIM complex. This eliminated Foggia as a Jupiter squadron site.

[redacted]

[redacted] USAF/IAF representatives reached a high point in Jupiter deployment planning when they signed the Technical Agreement on 10 August 1959.[11] Previously, USAF officials had hoped that the technical arrangements would have been signed by 1 April 1959. But Italian insistance that funding problems be resolved before proceeding with other discussions was the key factor in delaying the technical agreement. Operational planning, heretofore based on "flexible schedules," could now be pinpointed with a greater degree of accuracy.[12]

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CHAPTER VI: INSTALLATION AND CHECKOUT

Italy

Corrosion--A Problem of the First Magnitude

[redacted] Shortly after the Air Force signed the technical agreements with the Italian Air Force and materiel deployment started,* corrosion--its prevention and control--became a problem of the first magnitude.[1] Officials at the site in Italy reported that some equipment was arriving from the United States "in an unclean and corroded condition."[2] In order to solve this problem, as well as to improve the over-all quality control program, the MOAMA Commander sent local specialists to Italy to review the quality control programs of the JEFO, Detachment "C", and the USAFTA.[3] Meanwhile, site officials took prompt action in combating the corrosion problem. They increased the installation and checkout team by adding approximately 50 persons to the work force. Their duties were to correct the existing corrosion and perform preventive maintenance to preclude recurrence of corrosion.[4]

(U) Shortly after returning to the MOAMA, one specialist noted that two significant facts concerning organization structure, as they applied to quality control, were important to Jupiter installation and checkout. First, Detachment "C" was responsible for the contractor's quality control efforts. To perform this function, Detachment "C" had a chief and one inspector, assisted by three USAFTA personnel. The MOAMA official noted that the basic quality control effort exerted by Detachment "C" was a spot check of the contractor's operations "based upon inspection instructions and checkout procedures."[5]

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* By March 1962, the MOAMA had shipped or monitored the shipment of approximately 30,638,500 pounds of materiel in support of the SM-78 weapon system. There were no late arrivals at deployment sites. (See Appendix A).

[redacted]

[redacted]

A second significant fact was that the JEFO quality control responsibility was established under the weapon system acceptance plan "to observe checkouts of increments of the weapon system when ready for presentation by Detachment 'C'."[6*]

[redacted] The MOAMA quality control specialist also learned that the contractor's efforts in other areas were inadequate. Inadequacies were found in the following areas: (1) calibration program; (2) modification controls; (3) the correct documentation of acceptance of non-conforming materials; (4) an effective preventive maintenance program on Government Property; and finally, reporting of unsatisfactory receipt of material.[7]

[redacted] Effective coordination between officials of the JEFO, Detachment "C", and USAFTA assisted the MOAMA in solving many of the corrosion problems that were developing at Brookley AFB. Shortly before returning to Headquarters, MOAMA, the quality control official obtained a listing of all discrepancies that had been detected which might be eliminated on equipment at Brookley earmarked for overseas shipment.

[redacted] The degree of success in reducing corrosion on materiel being shipped from Brookley by water became a matter of record in December 1960. Two months earlier, a MOAMA inspector accompanied material shipped to Italy and Turkey. During this trip the inspector kept records on the

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* These significant facts could have influenced local officials to negotiate for a contract with CCMD for installation and checkout efforts in IBRAHIM II in order to gain positive control in accordance with Air Force quality control procedures.

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condition of the cargo. After the material had been unloaded and inspected, the MOAMA inspector requested of his NATO I counterpart a statement concerning the condition of the cargo. According to the trip report, the material "was received in excellent condition and better than any heretofore received."[8]

Bad Weather is a Factor

[redacted] Inclement weather contributed its share of problems to Jupiter deployment in Italy. Strong winds damaged the Pentadome. This temporary air-filled structure, used for storage, sustained damage on two occasions. Officials then decided to deflate the Pentadome and return it to the United States.[9] And in February 1961, high winds toppled and severely damaged missile 214 at Launch Position IV.[10]

[redacted] Excessive rainfall delayed construction work in the Ground Support Equipment staging area. At one time, this area was "a sea of mud eight to ten inches deep."[11] Because of this condition, the contractor had to apply more rock fill, adding to the time spent in construction.[12]

Launch Position I

[redacted] In early March 1960, installation and checkout personnel began processing equipment through the Interim RIM for this position. They gained partial access to one of the three emplacements on 8 May and complete access to the entire position during the first week in June. However, they were unable to gain earlier access because of the "contractor's refusal to let the I & C Team on the construction currently with him." Because of these delays in gaining accessibility, the orginally programmed turnover date of 1 June for this position was rescheduled for 11 July 1960.

[redacted]

[redacted]

[redacted] Installation and checkout personnel met this turnover date. However, they had a total of 85 waivers on work they had not completed. None of these affected the operational capability of the position. It must be noted that many of these waivers were issued because parts were not available at that time. Also, that personnel required some of these parts at other positions. With the removal of the last waiver in January 1961, Launch Position I was in a "clean" configuration.[13]

Launch Position II

[redacted] The USAFTA team gained limited access to this launch position in mid-June 1960. Full access was scheduled to occur on the revised programmed date of 1 July, with eventual transfer to the Italian Air Force slated for 1 September of that year.

[redacted] However, a series of misfortunes occurred that upset these plans. On 11 August, the missile battery in missile 206 exploded, causing officials to put in a replacement Jupiter. During the installation of the replacement missile, it sustained damages, causing officials to put in a third missile.

[redacted] Consequently, planning officials were compelled to reforecast the transfer date, which they changed to 5 October 1960. But again, another incident occurred. On 5 October, with practically all checkout procedures completed, the explosive bolts on missile 209 detonated. This caused yet another delay, since Headquarters, USAFE directed that all electrical systems tests were to be suspended at all launch positions until the determining cause of the detonation could be identified.

[redacted] At this time, Air Force officials then decided to transfer this position to the Italian Air Force on an "inventory only" basis

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[redacted]

on 17 October. The reason for this action was to allow the installation and checkout team to perform its task at Launch Position IV. After completing their work at number four, the team planned to return to Launch Position II to complete their work.

[redacted] By November 1960, USAFTA engineers had isolated and corrected the battery explosion problem. But other problems emerged during that month and the next. Moisture seepage appeared to seriously endanger the reliability of the weapon system. Consequently, many solutions were used. Perhaps the most effective corrective action required the covering of all cable connectors with a plastic type compound.

[redacted] In early January 1961, the installation and checkout team returned to Launch Position II. Their first project was to commence recalibration and requalification work. But much of this work was being performed in the Interim RIM. In order to keep up their productive efforts, the team returned to Position IV to get it ready for transfer to the Italian Air Force.

[redacted] But they encountered delays at Position IV. In early February 1961, high winds damaged missile 214. Thus, the team could not return to Position II until late March. Finally, they were able to effect transfer on 26 April 1961. At that time only 13 waivers were outstanding, but these were corrected by late May.[14]

Launch Position III

[redacted] This position was the fifth in order of installation and was programmed for transfer to the Italian Air Force on 1 December 1960. During the middle of October 1960, personnel commenced moving equipment to that area.

[redacted]

[redacted]

[redacted] The many technical problems that harassed the work at Launch Position II affected the progress at number three. These included the corrosion problems, with the time needed to devise corrective action; the battery explosion problem with the time needed to devise corrective action; the battery explosion problem with the subsequent suspension of electrical systems tests. In addition, there was the corresponding delay caused by the explosive bolts on missile 209 at Launch Position V. To further complicate matters, the installation and checkout team assigned to Launch Position III was also responsible for performing the same tasks at Launch Position V.

[redacted] Corrosion, however, reared its ugly head in another place--this time in the rocket engine on missile 210. USAFTA personnel removed this Jupiter from the launch position and transported it to the RIM for corrective action. In mid-February 1961, they returned the missile to the position. At this time, they reforecast the transfer date of the launch position to 5 April 1961.

[redacted] One other problem occurred that delayed the transfer until 14 April. This was the chore of purging the hydraulic system of one of the missiles located at the position. At the time of transfer, installation and checkout personnel had only nine waivers outstanding, and they completed them in late May 1961.[15]

Launch Position IV

[redacted] This was the fourth of ten positions in the series of installation. During the middle of September 1960, personnel started moving equipment to the site. At that time, planners believed the

[redacted]

[redacted]

USAF could transfer the position to the Italian Air Force on 1 November 1960. However, the problems the installation crews coped with at positions two and five caused officials to reforecast the transfer date to 8 December 1960.

[redacted] Essentially, all scheduled tasks were completed on 7 December. But at that time the solution for correcting the moisture problems caused planners to extend the turnover date to 20 January 1961. When it appeared that the installation and checkout team would meet this date, excessive work that was not expected was required to replace many cables. Again, planners extended the transfer date to 8 February.

[redacted] But on the night before the transfer would become effective, bad luck struck again. High winds "estimated in the vicinity of 45 to 50 knots with gusts up to 60 knots" toppled missile 214 to the ground. The installation and checkout personnel installed another missile. This unfortunate incident caused the Air Force to again reschedule the transfer date to become effective on 10 March 1961.

[redacted] Technical problems--this time in the vernier engines of the three missiles as well as troubles in the main distributors--caused an additional delay. Finally, the Air Force transferred the position to the Italian Air Force on 24 March 1961. At that time, only nine waivers were outstanding and these were corrected by early June 1961.[16]

Launch Position V

[redacted] The fifth position was the third in the sequence of installation. On 1 August 1960, USAFTA personnel gained partial accessibility to

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[redacted]

the position and full access on 15 August. At that time they expected to have the position ready for transfer to the Italian Air Force on 1 October.

[redacted] Installation and checkout progress slackened somewhat because of a shortage in liquid nitrogen, as well as failures in hydraulic lines. Coupled with these problems was the previously mentioned incident that occurred on 4 October 1960--the explosive bolts on missile 209 detonated, thus causing additional delay. Crews installed another missile at the emplacement. Consequently, these problems caused planners to revise their programmed transfer date, earmarking it for 23 November 1960.

[redacted] By late November, the crews had finished the acceptance inspections on two of the systems, but other problems developed. Moisture accumulated in the top center separation box and the fuel transporter fuel supply panel. At the time this happened, a panel in the launch control trailer failed.

[redacted] Because of the time required to correct these discrepancies, actual transfer of the position did not take place until 13 February 1961. Only seven waivers existed on the position at the transfer time. Installation and checkout specialists corrected them during the first week in May 1961.[17]

Launch Position VI

[redacted] This position was the eighth in the order of installation and checkout operations. In early April 1961, equipment commenced moving to the site. At that time, plans indicated that the Air Force would transfer the position to the Italian Air Force on 1 June 1961.

[redacted]

[redacted] Personnel were able to accomplish only limited operations during the first week because they were performing acceptance inspections at Launch Position III. Thus, they attained full strength at number six one week behind schedule. The one week delay in performing acceptance inspections at Launch Position III caused a corresponding delay in the schedule for this position. However, the Air Force transferred the position to the Italian Air Force on 7 June 1961.

[redacted] Of significance was the fact that at the time of the transfer, no waivers existed on this position. This was the first position to be transferred to the Italian Air Force with no work orders outstanding.[18]

Launch Position VII

[redacted] Launch Position VII was programmed as the sixth in the installation and checkout line. The technical problems that existed at other positions caused planners to reforecast the transfer date of this position. Accordingly, they reprogrammed the transfer date to become effective on 15 March 1961. However, the team was able to complete its work ahead of schedule and the Air Force transferred the position to the Italian Air Force on 3 March 1961, twelve days sooner than they had planned. Twenty waivers on this position existed at the time of transfer but installation and checkout personnel completed these in May.[19]

Launch Position VIII

[redacted] This position was the ninth in the series of installation and checkout operations, with a transfer date programmed for 30

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[redacted]

June 1961. In early April personnel started moving equipment to the site and RIM personnel performed the installation work. This was a change in the usual operations but was necessary because the three checkout teams were working at other positions.

[redacted] Of particular interest was the fact that this position was about 55 miles from the base at Gioia del Colle. Thus, transportation and logistics could possibly develop into problem areas.

[redacted] On 26 April, when the regular checkout team completed its work at Launch Position II, they moved to this position. Checkout operations proceded rapidly and the Air Force transferred the position to the Italian Air Force on 13 June 1961. This was accomplished 17 days before the programmed date. No work orders were on record for the site at the time of the transfer.[20]

Launch Position IX

[redacted] Launch Position IX was seventh in the series slated for installation and checkout operations. Personnel began moving equipment to the site in early March 1961. The installation and checkout team experienced no problems and met the scheduled transfer date of 29 April 1961.[21]

Launch Position X

[redacted] Planners had decided earlier that Launch Position X would be the last in the order of installation and checkout, with a transfer date established as 30 June 1961. USAFTA personnel completed their tasks in rapid time and the Air Force transferred the position to the

[redacted]

[redacted]

Italian Air Force on 20 June 1961, ten days ahead of the programmed deadline. In addition, they transferred the position in a "clean" configuration, since there were no waivers on the position.[22]

Turkey

Launch Position II

[redacted] According to plans, USAFTA personnel were to occupy this launch position on 1 August 1961. They gained initial access, however, on 21 August. Complete access to the revetment area, as well as the second and third emplacements did not materialize until the end of the month.

[redacted] Installation activity at the site did not progress as rapidly as USAFTA had planned. In the first place, the cleaning shop did not deliver the liquid oxygen and liquid nitrogen lines as scheduled. Secondly, vernier engines did not arrive from the United States according to the planned schedule. On one occasion USAFTA personnel had to install a vernier engine at the site rather than in the maintenance shop because the engine was not available when the missile was in the shop. Also, USAFTA personnel had to delay moving the other two missiles because of the late arrival of vernier engines. And finally, the power distribution hut arrived late from the United States, causing further delays.

[redacted] Nevertheless, USAFTA personnel transferred Launch Position II to the Air Force on 31 October 1961, the programmed date. At the time of transfer the Air Force had issued only eleven waivers and eleven deferred maintenance items on the position.[23]

[redacted]

[redacted]

Launch Position III

[redacted] This position, originally programmed to be the third in order of installation, became the second because of site construction problems. Original plans had established the occupancy date as 1 September 1961. USAFTA, however, did not gain access until 26 September.

[redacted] In October two missile incidents occurred that slowed down installation and checkout operations. While crews were checking out missile 317, its missile battery activated and burst. This contaminated the instrument compartment.

[redacted] The second incident involved missile 318 while it was at the site. A bullet pierced the missile's skin and struck the rocket engine's throat area. Crews in the maintenance shop repaired the skin damage, but they had to obtain a spare engine from the Air Force Weapon Supply to replace the damaged engine.

[redacted] In order to accelerate operations at the site, installation and checkout personnel moved in two spare missiles and sent the damaged ones to the maintenance area for repairs.

[redacted] USAFTA personnel, however, transferred Launch Position to the Air Force on 28 November 1961, two days before the programmed date.[24]

Launch Position IV

[redacted] Because of construction difficulties at this position, USAFTA crews gained only partial accessibility, but it was delayed from 1 November until the seventh of the month. These construction problems also retarded access to the second emplacement until 20

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[redacted]

November and to the third emplacement until the 28th of the month. In addition to those difficulties at the site itself, construction problems postponed occupancy of the crew ready building until late December 1961. To overcome this delay, the contractor moved ten house trailers to the site. Installation and checkout personnel used these quarters until the launch position was ready for transfer.

[redacted] The contractor's crews expended great effort to complete work at this position, working on an extended shift basis for six days per work. And on 21 December 1961, they transferred Launch Position IV to the Air Force. At that time, there were only two waivers and nine deferred items written on the DD 250 Forms.[25]

Launch Position I

[redacted] Although contractor personnel did not gain complete access to the position until 27 December, they were able to begin their work at the first and second emplacements on 1 and 7 December, respectively.

[redacted] Fearing that the access road would become impassable if bad weather arrived, personnel started moving equipment to the area on 1 December. This operation continued during the first three weeks of the month.

[redacted] Installation and checkout operations continued at a steady pace. The contractor's crews transferred the position to the Air Force on 23 January 1962. When this event occurred, the

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[redacted]

Air Force had issued only four waivers and 17 deferred maintenance items on the position.[26]

Launch Position V

[redacted] Jupiter deployment was nearing a successful climax when USAFTA personnel gained access to this, the last, Jupiter launch position during the final week of December 1961. Equipment moved to all three emplacements during January.

[redacted] Installation and checkout operations, however, did not move as smoothly as anticipated because of the non-availability of some equipment. Shortages existed for gyros for the ST-90's. Installation personnel also needed one fuel transfer line and one theodolite. These items became available in sufficient time to complete installation and checkout operations.

[redacted] USAFTA crews completed this work before the programmed deadline. They transferred Launch Position V to the Air Force on 26 February, although the DD 250 acceptance forms were not signed until 28 February. The Air Force pointed out only 19 waivers on this, the last Jupiter launch position.[27]

Summary of Installations and Checkout Efforts in Turkey

[redacted] Documentary evidence of operations in Turkey clearly depict the rugged terrain where the Jupiter squadron is deployed. Therefore, the causes for most construction delays are evident. In planning an installation and checkout program such as this one, it naturally follows that delays in any one of a series of operations will cause corresponding delays in subsequent phases.

[redacted]

[redacted]

[redacted] Practical application of lessons learned in Italy caused installation and checkout operations to move at a better pace in Turkey. Although problems did occur, solutions seemed to come more quickly at IBRAHIM II.

[redacted] Of significance is the fact that the contractor, USAFTA, "completed the installation and checkout of a complete tactical weapons system within the originally planned and scheduled time frame."[28]

[redacted] Thus, the MOAMA completed its role in the installation and checkout of the Jupiter. There were other areas of significance, particularly with respect to logistic support of the system as authorized by AF Manual 67-1. According to Vol. XXIII of this manual, MOAMA had the responsibility of maintaining the weapon system storage site at which a complete range of all direct mission support items are stocked for automatic resupply. Subsequent studies will reveal the role of this headquarters in the logistic support of the system.[29]

[redacted]

CHAPTER I - FOOTNOTES

1. Hearings before a Subcommittee of the Committee on Government Operations, House of Representatives, 86th Congress, 1st Session. "Organization and Management of Missile Programs," page 735. MOAMA Archives.

2. David S. Akens Historical Origins of the George C. Marshall Space Flight Center p. 14. MOAMA Historical Archives. Hereafter referred to as "Historical Origins".

3. Memorandum, Secretary of Defense Charles E. Wilson, to Members of the Armed Forces Policy Council, 26 November 1956, subject: Clarification of Roles and Missions to Improve the Effectiveness of Operation of the Department of Defense. Document Number 1.

4. Major Decisions Affecting Jupiter Program. About 1 December 1958. Document Number 125A.

5. Jupiter Quarterly Report for Second Quarter CY-61. Page 15. Document Number 189.

6. Ibid.

7. Ibid.

8. "Historical Origins", page 14.

9. Major Decisions Affecting Jupiter Program; Document Number 125A.

10. Jupiter Quarterly Report for Second Quarter, CY-61, page 15. Document Number 189.

11. Major Decisions affecting Jupiter Program; Document Number 125A.

12. De Haven "History of AMC Participation in the Air Force Ballistic Missiles Program, January-June 1958", Part II, App. B., page 13 MOAMA Historical Archives.

13. Ibid., pages 16-17.

14. Ibid., page 19.

15. Jupiter Program Chronology; page 2. Prepared by Historical Office, AFSC for Aerospace Systems. MOAMA Historical Archives.

16. Ibid.

17. Ibid.

18. Ibid.

19. Ibid.

20. Ibid.

21. Ibid.

22. History of the Mobile Air Materiel Area, 1 July 1957 - 30 June 1960, Volume II, page 177. MOAMA Historical Archives.

23. Jupiter Program Chronology, page 3.

24. Ibid.

25. Ibid.

26. Ibid.

27. Ibid.

28. "Historical Origins", page 16.

29. History of the MOAMA, July 1957 - December 1960, Volume II, pages 180-181. MOAMA Historical Archives.

30. "Historical Origins", page 16.

31. Jupiter Program Chronology, page 4.

32. Ibid.

33. Ibid.

34. Jupiter Program Chronology (LBK 300), page 3. MOAMA Historical Archives.

35. Ibid.

36. Ibid., page 4.

37. Ibid.

38. Ibid.

39. Ibid.

40. Ibid.

41. Ibid.

42. Ibid., pages 4-5.

43. Ibid., page 5.

44. MOAMA presentation @ Hq AMC on 6 March 1961. MOAMA Historical archives.

45. Ibid.

46. Ibid.

47. Ibid.

48. Ibid.

49. Ibid.

50. Ibid.

51. Ibid.

52. Ibid., page 6.

53. Ibid.

54. Ibid.

55. MOAMA presentation on SM-78 at Hq AMC by Mr. Duke, 6 March 1961. MOAMA Historical Archives.

56. Jupiter Program Chronology, page 6.

57. Ibid.

58. Ibid.

59. Ibid.

60. Ibid.

61. Ibid., page 7.

62. Ibid.

63. Ibid.

64. Ibid.

65. Ibid.

66. Ibid.

67. Ibid.

68. Ibid.

69. Ibid., pages 7-8.

70. Ibid.

71. Ibid.

72. Ibid.

73. Ibid.

74. Ibid.

75. Ibid.

76. Ibid., page 9.

77. Ibid.

78. Ibid.

79. Ibid.

80. Ibid.

81. Jupiter Progress Report, April 1959, pages 1-2, MOAMA Historical Archives.

82. Jupiter Progress Report for May 1959, page 2-3, Document Number 138.

83. Jupiter Progress Report, April 1959, page 3, MOAMA Historical Archives.

84. Jupiter Progress Report, May 1959, page 1, Document Number 138.

85. Ibid., pages 1-2.

86. Ibid., page 3.

87. Jupiter Progress Report, June 1959, page 5, Document Number 140.

88. Ibid.

89. Jupiter Progress Report, July 1959, page 2, Document Number 142.

90. Jupiter Progress Report, August 1959, page 4, Document Number 146.

91. Ibid., page 1.

92. Jupiter Progress Report, September 1959, page 1, Document Number 151.

93. Ibid., page 1.

94. Jupiter Progress Report, October 1959, page 3, Document Number 152.

95. Ibid., page 1.

96. Ibid., page 1.

97. Ibid., page 1.

98. Jupiter Progress Report, December 1959, page 1, Document Number 155.

99. Jupiter Progress Report, November 1959, page 8, Document Number 154.

100. Jupiter Progress Report, October 1959, page 1, Document Number 152.

101. Jupiter Progress Report, November 1959, page 1, Document Number 154.

102. Ibid., page 1.

103. Ibid., page 7.

104. Ibid., page 7.

105. Ibid., page 1.

106. Ibid., page 6.

107. Jupiter Progress Report, December 1959, page 1, Document Number 155.

108. Ibid., page 1.

109. Jupiter Progress Report, January 1960, page 4, Document Number 157.

110. Ibid.

111. Ibid.

112. Ibid., page 1.

113. Jupiter Progress Report, December 1959, page 1, Document Number 155.

114. Jupiter Progress Report, January 1960, page 1, Document Number 157.

115. Ibid.

116. Ibid.

117. Jupiter Progress Report, March 1960, page 4, Document Number 160.

118. Ibid., page 4.

119. Ibid.

120. Jupiter Progress Report, April 1960, Figure 11, Document Number 162.

121. Jupiter Progress Report, May 1960, page 4, Document Number 164.

122. Ibid., page 4.

123. Jupiter Progress Report, June 1960, page 1, Document Number 166.

124. Ibid.

125. Ibid.

126. Jupiter Progress Report, July 1960, page 1, Document Number 168.

127. Ibid., page 4.

128. Ibid., page 1.

129. Jupiter Weapon System Installation (IBRAHIM II) Report No. 12, Final Report and Summary. Page 2. Filed in SM-78 (Jupiter) Weapon Support System Management Division (MONC). Hereafter referred to as "IBRAHIM II Final Report."

130. Jupiter Progress Report, September 1960, page 4, Document Number 172.

131. Ibid.

132. "IBRAHIM II Final Report", page 2.

133. Jupiter Progress Report, September 1960, page 4, Document Number 172.

134. Ibid., page 1.

135. Jupiter Progress Report, October 1960, page 3, Document Number 176.

136. Jupiter Progress Report, September 1960, page 1, Document Number 172.

137. Jupiter Progress Report, October 1960, page 3, Document Number 176.

138. Ibid., page 2.

139. Ibid.

140. Jupiter Quaterly Report for 1st Quater CY-61, 7 April 1961, page 3, Document Number 183.

141. "IBRAHIM II Final Report," page 3.

142. Jupiter Quarterly Report for 1st Quarter CY 61, page 1.

143. Jupiter Quarterly Report, as of 14 July 1961, page 3, Document Number 189.

144. Ibid.

145. Ibid.

146. "IBRAHIM II Final Report", page 2.

147. Jupiter Quarterly Report, as of 14 July 1961, page 3, Document Number 189.

148. Ibid, page 1.

149. Ibid, page 3.

150. "IBRAHIM II Final Report", page 11.

151. Jupiter Quarterly Report, 14 July 1961, page 3, Document Number 189.

152. "IBRAHIM II Final Report", page 11.

153. Jupiter Quarterly Report, 14 July 1961, page 3, Document Number 189.

154. Ibid.

155. "IBRAHIM II Final Report", page 11.

156. Ibid.

157. Jupiter Quarterly Report, 14 July 1961, page 3, Document Number 189.

158. Ibid.

159. Ibid., page 2.

160. "IBRAHIM II Final Report," page 8.

161. Telephone conversation with Air Force buyer, Mr. Charles Ferris on 23 July 1962. Also, interview with Mr. Gordon E. Blackwell, Jr. of MOCB, same date.

162. "IBRAHIM II Final Report", page 6.

163. Ibid., page 14.

164. Ibid., page 11.

165. Ibid.

166. Ibid., pages 14-15.

167. Ibid., page 12.

168. Ibid., pages 15-16.

169. Ibid., pages 8-9.

170. Ibid., pages 16-17.

171. Ibid., pages 8-9.

172. Ibid., page 17.

173. AFLC Weekly Staff Digest, 28 May 1962, item no. 1. MOAMA Historical Archives.

CHAPTER II

1. The Army Air Forces in World War II; Vol III, Europe; Argument to V-E Day, Chapter 4, page 86. MOAMA Historical Archives.

2. Historical Origins of the George C. Marshall Space Flight Center; page 2. MOAMA Historical Archives.

3. Europe; Argument to V-E Day, page 87.

4. Ibid.

5. Ibid.

6. Historical Origins of the George C. Marshall Space Flight Center; page 4. See also Europe: Argument to V-E Day, page 544.

7. History of AAF Participation in Project Paperclip, May 1945 - March 1947. Hq. AFLC Historical Archives.

8. Historical Origins of the George C. Marshall Space Flight Center, page 26.

9. Ibid., page 27-28.

10. Ibid., page 30.

11. Ibid., page 36.

12. Booklet, AOMC, U. S. Army Ordnance Missile Command; number page number . MOAMA Historical Archives.

13. Army Ordnance Missile Command Brochure "Missiles and Space". No date, no page number; MOAMA Historical Archives.

14. Ibid.

15. Ibid.

16. AFP 210-1 A Chronology of American Aerospace Events; page 68. MOAMA Historical Archives.

17. "Historical Origins", page 14.

18. Ibid.

19. Orientation Handbook Revision II, Jupiter Weapons System 315-A2; page 1. MOAMA Historical Archives.

20. Ibid.

21. Ibid.

22. Ibid., page 3.

23. Ibid., page 3.

24. Ibid., page 3.

25. Ibid., page 3.

26. Ibid., page 7.

27. Ibid., pages 7-9.

CHAPTER III

1. Memorandum, Secretary of Defense Charles E. Wilson, to Members of the Armed Forces Policy Council, 26 November 1956, subj: Clarification of Roles and Missions to Improve the Effectiveness of Operation of the Department of Defense. Document Number 1.

2. Ibid.

3. Ibid.

4. Jupiter Program Chronology.

5. Ltr., Lt Colonel Paul D. Vermette, Chief, Jupiter WSPO, BMO, Inglewood, California, to Cmdr., AMC, 18 February 1958, subj: Jupiter Weapon System Project Office. Document Number 32.

6. Ltr., Brig. General Ben I. Funk, Deputy Director/Ballistic Missiles Div., Proc. and Prod., Hq. AMC, to Cmdr., AMC, 14 February 1958, aubj: Feasibility Study for Assigning Jupiter Weapon System Management Function to MOAMA w/incl, staff study, subj: Jupiter Management Assignment. Document Number 31.

7. Ibid.

8. Ibid.

9. Ibid.

10. Ibid.

11. Ibid.

12. Ltr, General E. W. Rawlings, Comdr., AMC, to Cmdr., MOAMA 27 February 1958, subj: Logistic Support for Jupiter Document Number 34.

13. Ibid.

14. Memorandum, Colonel E. M. Tally, Jr., Deputy Director, Plans and Programs, Hq. AMC, to Comdr., AMC, 17 April 1958, subj: Jupiter Program Management. Document Number 71.

15. Memorandum, General Funk and General Callahan to Comdr., AMC, 3 April 1958, subj: Jupiter Program Management, Document Number 60.

16. Ibid.

17. Ibid.

18. Ltr, General Callahan to Comdr., AMC, 14 April 1958, subj: MOAMA Ballistic Missile Personnel Requirements, Document Number 68.

19. Ibid.

20. AMC Ltr. No. 20-35, 17 July 1958, subj: Transfer of Responsibility for the Logistics and Industrial Operations Functions of the Air Force Jupiter Liaison Office from MCV (Hq AMC) to MOAMA, Document Number 114.

21. Ltr., (Personal) Brig. General J. A. Barclay, Comdr., ABMA, To General Callahan, 10 July 1958, no subj., Document Number 113.

22. Ibid.

23. Ibid.

24. Ltr., (Personal) General Callahan to General Barclay, 25 August 1958, no subject, Document Number 116.

25. Ibid.

26. Plans for Transfer of Responsibility for Logistics Functions (JSMO/AF JUPLO), 13 November 1958. MOAMA Historical Archives.

27. Ibid.

28. Ltr., General Funk to Comdr., AMC, 4 December 1958, subj: Transfer of SM-78 (Jupiter) Executive Management Responsibility, Document Number 124.

29. Ltr., Lt General W. F. McKee, Vice Comdr., AMC, to Comdr MOAMA, 17 Dec. 1958, subj: Transfer of SM-78 (Jupiter) Executive Management Responsibility. Document Number 129.

30. Hq AMC General Orders No. 1, 2 January 1959. Document Number 132.

31. AMC Reg 23-1, App. 2, 1 Jan. 1959, subj: Specific Responsibilities of the Commander, Mobile Air Materiel Area. MOAMA Historical Archives.

32. AFR No. 20-10, 24 March 1958, ORGANIZATION -- GENERAL: Weapon System Project Offices. Par. 1 C. MOAMA Historical Archives.

33. Document Number 1; also Document Number 129.

CHAPTER IV

1. AFR 20-10, dated 24 March 1958. MOAMA Hist. Archives.

2. Memorandum for General Rawlings, dated 4 December 1958; subject: Study re Optimum AMC Management of Jupiter Program; from Major General Ben I. Funk, Comdr., Ballistic Missiles Center. Document Number 129.

3. AMCR 375-1, dated 25 July 1958. MOAMA Historical Archives.

4. AFR 20-10, dated 24 March 1958. MOAMA Historical Archives.

5. Memorandum of Agreement, dated 12 December 1958. Document Number 127.

6. Ibid.

7. Memorandum of Agreement, November 1959. Document Number 152A.

8. Ibid.

9. Ibid.

10. Ibid.

11. Ibid.

12. Ibid.

13. Ibid.

14. Ibid.

15. Ibid.

16. Ibid.

17. Ibid.

18. Ibid.

19. Ibid.

20. Ibid.

21. Ibid.

22. See Chronology, p. 19.

23. See Chronology, p. 19.

CHAPTER V

1. Historical Report, Office of the Assistant CINSAC (SAC MIKE), Hq. Strategic Air Command, 1 July - 31 December 1958; Vol. I, Chapter III, page 86. A copy of this chapter is filed in the MOAMA Historical Archives.

2. Ibid.

3. Ibid., page 87. Also, History of the Strategic Air Command, Historical Study No. 72 Participation in the Missile Program, 1 January 1958 - 30 June 1958. Chapter I, page 28. A copy of this chapter is filed in the MOAMA Historical Archives.

4. Historical Report, Office of the Assistant CINSAC (SAC-MIKE) July - December 1958, page 87.

5. Ibid, page 88

6. Ibid.

7. See chronology, page 12.

8. Jupiter Progress Report, April 1959, pages 7-8, filed in MOAMA Historical Archives.

9. Historical Report, Office of the Assistant CINSAC (SAC-MIKE), July-December 1958, page 92.

10. MOAMA European Trip Report, 26 October - 19 November 1958, Parts III and IV. passim. Filed in SM78 Weapon Support System Management Division (MONC).

11. See chronology, page 14.

12. Ibid.

CHAPTER VI

1. MOAMA European Trip Report, 8-24 May 1960; Part I passim. Notes filed in MOAMA Historical Archives.

2. Ibid.

3. Trip Report No. MOQT-60-15, dated 31 May 1960. Document Number 165.

4. Ibid.

5. Ibid.

6. Ibid.

7. Ibid.

8. Trip Report, 12 December 1960. Document Number 177.

9. See Chronology, page 16.

10. See Chronology, page 20.

11. Jupiter Weapon System Installation; Report No. 26, page 4. Filed in SM-78 Weapon Support System Management Division (MONC). Hereafter referred to as "NATO I Final Report".

12. Ibid.

13. Ibid., pages 11-12.

14. Ibid., pages 12-13.

15. Ibid., pages 13-14.

16. Ibid., page 14.

17. Ibid., pages 14-15.

18. Ibid., page 16.

19. Ibid., pages 15-16.

20. Ibid., page 16.

21. Ibid., pages 16-17.

22. Ibid., page 17.

23. "IBRAHIM II Final Report", page 14.

24. Ibid., pages 14-15.

25. Ibid., pages 15-16.

26. Ibid., pages 16-17.

27. Ibid., page 17.

28. Ibid., page 29.

GLOSSARY OF ABBREVIATIONS

ABMA	Army Ballistic Missile Agency
Admin.	Administration
AEC	Atomic Energy Commission
AF	Air Force
AFB	Air Force Base
AFBMD	Air Force Ballistic Missiles Division
AFJUPLO	Air Force Jupiter Liaison Office
AFM	Air Force Manual
AFR	Air Force Regulation
AFSC	Air Force Specialty Code Air Force Systems Command
AFSD	Air Force Shipping Directive
AFW	Air Force Weapon Supply Account
AMA	Air Materiel Area
AOMC	Army Ordnance Missile Command
ARDC	Air Research and Development Command
ARGMA	Army Rocket and Guided Missile Agency
ATC	Air Training Command
BM	Ballistic Missile(s)
BMC	Ballistic Missiles Center
BOD	Beneficial Occupancy Date
CCMD	Chrysler Corporation Missile Division
CINC	Commander-in-Chief
CINSAC	Commander-in-Chief of the Strategic Air Command
CINCUSAFE	Commander-in-Chief of the United States Air Force in Europe
Cmdr.	Commander
Contr.	Contract(or)
CONUS	Continental United States
CPE	Circular Probable Error
C/S	Chief of Staff
CTL	Combat Training Launch
CTSP	Contractor Technical Services Personnel
D/A	Department of the Army
DD	Defense Department; Deputy Director
Def.	Defense
DF	Disposition Form
DOD	Department of Defense
EFO	European Field Office
EMR	Executive Management Responsibility
FAF	French Air Force
FICO	Ford Instrument Company

GFE	Government-furnished Equipment
G.O.	General Order
GSE	Ground Support Equipment
IAF	Italian Air Force
I and C	Installation and Checkout
IBRAHIM II	Another Recipient of Jupiter Missiles
IOC	Initial Operational Capability
IRBM	Intermediate Range Ballistic Missile(s)
IWST	Integrated Weapon System Training
JUSMMAT	Joint U. S. Military Mission for Aid to Turkey
Log.	Logistic(s)
LOGBALNET	Logistics Ballistic Network
LOX	Liquid Oxygen
LSM	Logistic Support Manager
LST	Live System Test(ing)
Ltr.	Letter
MAAG	Military Assistance Advisory Group
MIPR	Military Interdepartmental Purchase Request
MOAMA	Mobile Air Materiel Area
MOCP	Missile Out of Commission for Parts
Msg.	Message
NAA	North American Aviation
NATO	North Atlantic Treaty Organization
OGMS	Ordnance Guided Missile School
ORD	Operational Readiness Date
OSD	Office of the Secretary of Defense
O & M	Operation and Maintenance
PA	Procurement Authorization
POAE	Port of Aerial Embarkation
POD	Port of Debarkation
POE	Port of Embarkation
PPB	Provisioning Parts Breakdown
Prog.	Program
Proj.	Project
R & D	Research and Development
RIM	Missile Receipt, Inspection, and Maintenance Building
SAC	Strategic Air Command
SAC-MIKE	Short Title for the Strategic Air Command Headquarters Element Located with the Air Force Ballistic Missiles Complex in Los Angeles.
SBAMA	San Bernardino Air Materiel Area
SMS	Strategic Missile Squadron
Spec.	Special

TAF	Turkish Air Force
TTS	Technical Training Squadron
TUSAFG	Turkey/US Air Force Group
TUSLOG	Turkey/US Logistics Group
UAL	Unit Allowance List
U. S.	United States
USAF	United States Air Force
USAFE	United States Air Force in Europe
USAFE-ADVON	United States Air Force in Europe Advanced Echelon
USAFTA	United States Association for Technical Assistance
WSECL	Weapon System Equipment Component List
WSOCP	Weapon System Out of Commission for Parts
WSSS	Weapon System Storage Site

BIBLIOGRAPHY

Congressional Documents

Eleventh Report by the Committee on Government Operations Organization and Management of Missile Programs (Union Calendar No. 483), 86th Congress, 1st Session.

Hearing Before a Subcommittee of the Committee on Government Operations, House of Representatives Organization and Management of Missile Programs, 86th Congress, 1st Session.

Histories

Max Rosenberg, "USAF Ballistic Missiles (1958 - 1959)"

Max Rosenberg, "Plans and Policies for the Ballistic Missile Initial Operational Capability Program"

Royal D. Frey "History of the Air Materiel Command (1 July - 31 December 1958)" Vol. I: Text

Bernard J. Termena "Missile Logistics, 1951 - 1959" Vol. I: Text

Ethel M. De Haven "AMC Participation in the AF Ballistic Missiles Program Through December 1957" Vol. I: Narrative--Abridged Copy

Ethel M. De Haven "AMC Participation in the AF Ballistic Missiles Program (1 January - 30 June 1958)" Vol. I: Narrative

Ethel M. De Haven "History of AMC Participation in the AF Ballistic Missiles Program (January - June 1958)" Part II--Missile Systems. Vol. I--Narrative

David S. Akens "Historical Origins of the George C. Marshall Space Flight Center"

"History of the Strategic Air Command (1 January 1958 - 30 June 1958) Participation in the Missile Program"

"History of the 1st Missile Division (January - June 1959)" Vol. I.

"Historical Report, Office of the Assistant CINSAC (SAC-MIKE), (1 July - 31 December 1958)" Vol. I: Narrative

The Army Air Forces in World War II Vol. III: Argument to V-E Day

---

Non-Fiction

General John B. Medaris, USA (Ret.) Countdown for Decision

General Maxwell D. Taylor, USA (Ret.) The Uncertain Trumpet

Air University Quarterly Review(s)

Files

Office of the Commander (Headquarters, Mobile Air Materiel Area)

SM-78 (Jupiter) Weapon Support System Management Division (MOAMA)

MOAMA Historical Archives

Headquarters, Air Force Logistics Command Historical Division Archives

APPENDIX A

SHIPMENTS - - AIR AND SURFACE

SHIPMENTS BY AIR

DESTINATION	DATE	WEIGHT
IZMIR, TURKEY	JUNE 1961	55,000
IZMIR, TURKEY	AUGUST 1961	84,000
IZMIR, TURKEY	SEPTEMBER 1961	62,000
IZMIR, TURKEY	OCTOBER 1961	47,000
IZMIR, TURKEY	NOVEMBER 1961	64,000
IZMIR, TURKEY	DECEMBER 1961	104,000
IZMIR, TURKEY	JANUARY 1962	18,000
		434,000
TARANTO, ITALY	JULY 1960	80,000
TARANTO, ITALY	SEPTEMBER 1960	110,000
TARANTO, ITALY	OCTOBER 1960	14,000
TARANTO, ITALY	NOVEMBER 1960	41,000
TARANTO, ITALY	DECEMBER 1960	56,000
TARANTO, ITALY	FEBRUARY 1961	50,000
TARANTO, ITALY	MARCH 1961	42,000
TARANTO, ITALY	APRIL 1961	14,000
TARANTO, ITALY	JULY 1961	13,000
TARANTO, ITALY	OCTOBER 1961	22,000
		442,000
CAPE CANAVERAL, FLA	AUGUST 1960	47,000
CAPE CANAVERAL, FLA	JANUARY 1961	26,000
CAPE CANAVERAL, FLA	MAY 1961	25,000
CAPE CANAVERAL, FLA	SEPTEMBER 1961	25,000
CAPE CANAVERAL, FLA	JANUARY 1962	26,000
		149,000

MISCELLANEOUS SPECIAL MISSION AIRLIFT TO VARIOUS DESTINATIONS IN SUPPORT OF THE SM-78 MISSILE OVER A PERIOD FROM JANUARY 1960 to MARCH 1962. -----160,000 POUNDS.

SURFACE SHIPMENTS

VESSEL	DESTINATION	SAILING DATE	WEIGHT	M/T	L/T	CUBE
SS MAYO LYKES	TARANTO, ITALY	OCTOBER 1959	1,396,596	3951	623	158,042
SS TILLIE LYKES	TARANTO, ITALY	NOVEMBER 1959	2,828,701	6873	1263	274,930
SS PALMETTO STATE	TARANTO, ITALY	DECEMBER 1959	2,831,505	6141	1264	245,656
SS GEORGE LYKES	TARANTO, ITALY	DECEMBER 1959	2,153,192	5499	961	219,911
SS ALMERIA LYKES	TARANTO, ITALY	MARCH 1960	2,661,481	6799	1188	271,967
SS LIPSCOMB LYKES	TARANTO, ITALY	MAY 1960	1,909,809	5035	853	201,409
SS ZOELLA LYKES	TARANTO, ITALY	JULY 1960	1,867,499	5113	834	204,506
SS ALMERIA LYKES	TARANTO, ITALY	OCTOBER 1960	2,308,499	5971	1031	238,854
SS HARRY CULBREATH	TARANTO, ITALY	JANUARY 1961	1,955,962	3957	873	158,264
			19,913,244	49339	8890	1,973,539

SURFACE SHIPMENTS

VESSEL	DESTINATION	SAILING DATE	WEIGHT	M/T	L/T	CUBE
SS ZOELLA LYKES	IZMIR, TURKEY	APRIL 1961	348,904	1322	156	52,869
SS NORTHWESTERN VICTORY	IZMIR, TURKEY	APRIL 1961	2,004,130	3735	895	149,419
SS DOCTOR LYKES	IZMIR, TURKEY	MAY 1961	2,224,205	5830	993	233,192
SS REMSEN HEIGHTS	IZMIR, TURKEY	JUNE 1961	1,505,256	4067	672	162,684
SS GREEN VALLEY	IZMIR, TURKEY	AUGUST 1961	1,420,801	3834	634	153,371
SS SOLON TURMAN	IZMIR, TURKEY	SEPTEMBER 1961	2,037,028	5278	909	211,100
			9,540,324	24066	4259	962,635

APPENDIX B

STATUS OF FUNDS EXPENDED

BY

DEPARTMENT OF THE ARMY AND

AMOUNTS REIMBURSED BY

THE AIR FORCE

BY

FISCAL YEAR

STATUS OF FUNDS BY FISCAL YEAR (1956)

JUPITER PROGRAM

As of 30 June 1961

(In millions of Dollars)

	Funds Programmed	Allocations	Reserved For Future Allocations	Cumulative Commitments	Cumulative Obligations	Cumulative Expenditures
ARMY						
R&D, A	10.72	10.72	0	10.69	10.69	10.69
P&P, A(1)	29.00	29.00	0	28.82	28.82	28.82
Total	39.72	39.72	0	39.51	39.51	39.51

(1) Includes major facilities

STATUS OF FUNDS BY FISCAL YEAR (1957)

JUPITER PROGRAM

As of 30 June 1961

(In Millions of Dollars)

	Funds Programmed	Allocations	Reserved For Future Allocations	Cumulative Commitments	Cumulative Obligations	Cumulative Expenditures
ARMY						
R&D, A	25.00	25.00	0	24.71	24.71	24.71
P&P, A(1)	115.88	115.88	0	114.57	114.57	114.57
MCA	25.00	25.00	0	23.46	23.46	23.46
Total	165.88	165.88	0	162.74	162.74	162.74

(1) Includes Nitrogen Transfer System @ .378 and Rail Transfer System @ .350.

STATUS OF FUNDS BY FISCAL YEAR (1958)

JUPITER PROGRAM

As of 30 June 1961

(In Millions of Dollars)

	Funds Programmed	Allocations	Reserved For Future Allocations	Cumulative Commitments	Cumulative Obligations	Cumulative Expenditures	MIPR's Recd	Reimbursement by AF
ARMY								
R&D, A	48.80	48.80	0	48.67	48.67	44.53	0	0
P&P, A	80.00	80.00	0	77.84	77.84	77.84	0	0
P&P, A (IOC)	(1)202.70	202.70	0	202.35	202.35	198.86	202.70	202.70
MCA	1.20	1.20	0	1.11	1.11	1.09	0	0
Total	332.70	332.70	0	329.97	329.97	322.32	202.70	202.70

(1) AF responsibility for reimbursement includes FY 58 IOC only and all FY 59 and FY 60 Programs.

STATUS OF FUNDS BY FISCAL YEAR (1959) (1)

JUPITER PROGRAM

As of 30 June 1961

(In Millions of Dollars)

	Funds Programmed	Allocations	Reserved For Future Allocations	Cumulative Commitments	Cumulative Obligations	Cumulative Expenditures	MIPR's Recd	Reimbursement by AF
ARMY								
R&D, A	26.00	26.00	0	26.00	26.00	26.00	26.00	26.00
PEM, A(2)	206.89	206.89	0	206.89	206.89	201.60	206.89	192.58
Total	232.89	232.89	0	232.89	232.89	227.60	232.89	218.58

(1) AF responsibility for reimbursement includes FY 58 IOC only and all FY 59 and FY 60 Programs.
(2) PEM, A - Procurement of equipment and missiles, Army, formerly P&P, A.
(3) Includes $.200 retained by OCO for overseas distribution.
(4) AF MIPR's received are itemized by Program Budget codes as follows:

P-131	$138.023	P-260	$ .722
P-140	6.968	P-432	.605
P-220	.238	P-438	.665
P-244	54.124	P-443	1.346
		P-458	.951
P-250	3.251	P-621	26.000
	TOTAL	$232.893	

STATUS OF FUNDS BY FISCAL YEAR (1960)

JUPITER PROGRAM

As of 30 June 1961

(In Millions of Dollars)

	Funds Programmed	Allocations	Reserved For Future Allocations	Cumulative Commitments	Cumulative Obligations	Cumulative Expenditures	AF MIPR's	Reimbursement by AF
ARMY								
PEM, A	99.86 (2)	99.86 (3)	0	99.86	99.86	95.88	99.86	73.01

Funds approved by OSD/BMC do not include funds programmed within AF O&M accounts; however, Funds Programmed and Allocations do include these AF O&M amounts.

(1) All "Expenditures" are estimates since the fiscal system does not provide this data at the program level.

(2) Includes $.222 retained by OCO for overseas distribution.

(3) AF MIPR's received are itemized by Program Budget codes as follows:

P-220	$ 5.154	P-413	$..045
P-230	77.417	P-431	0
P-270	12.364	P-432	.038
P-408	.448	P-438	0
P-411	1.805	P-443	1.604
		P-458	.985
	TOTAL	$99.860	

STATUS OF FUNDS BY FISCAL YEAR (1961)

JUPITER PROGRAM

As of 30 June 1961

(In Millions of Dollars)

	Funds Programmed	Allocations	Reserved For Future Allocations	Cumulative Commitments	Cumulative Obligations	Cumulative Expenditures	AF MIPR's	Reimbursement by AF
ARMY								
PEMA, A	9.17 (1)	9.17	0	9.17	9.17	7.22	9.17	5.00

(1) Includes $6.696 financed by suballotment from OCO and $2.474 to be financed through local IAF.

AF MIPR's received are itemized by Program Budget Codes as follows:

P-443	4.879
P-408	.161
P-690	.439
P-2010	3.691
	9.170